The Pyramid Complex of Senwosret III at Dahshur
Architectural Studies

By Dieter Arnold

With Contributions and an *Appendix* by Adela Oppenheim
and Contributions by James P. Allen

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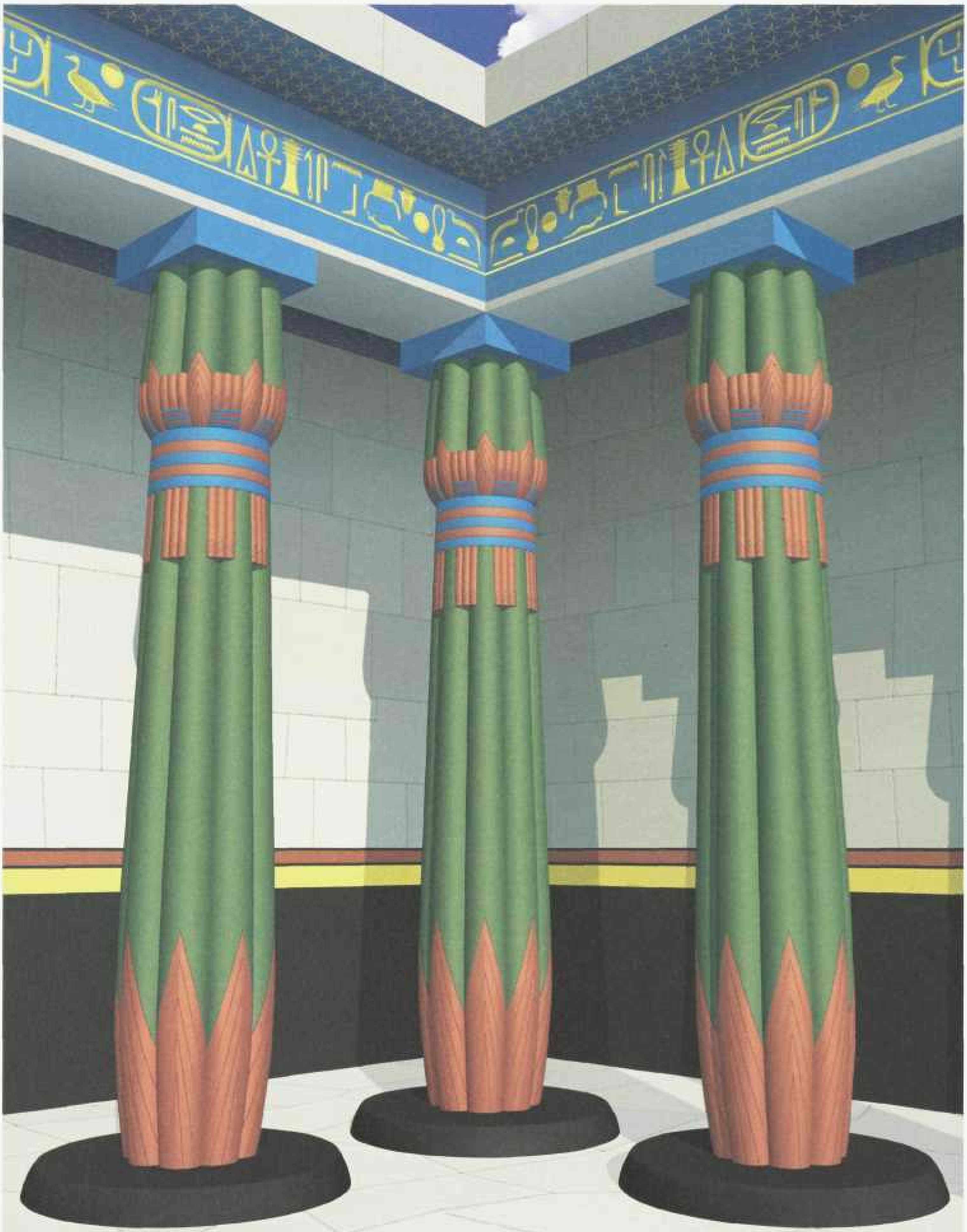

Computer modeling of papyrus-bundle columns in a hypothetical court of the south temple of Senwosret III. The architrave inscription is based on reliefs found in the pyramid complex of Senwosret III and examples from Pierre Lacau and Henri Chevrier, *Une chapelle de Sésostris Ier à Karnak* (Cairo, 1969). Computer modeling by David Johnson, The Museum of Reconstructions.

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DIETER ARNOLD

With Contributions and an Appendix by ADELA OPPENHEIM
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Design by Bruce Campbell
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FRONT:
Antechamber of Senwosret III facing east

BACK:
Crypt and sarcophagus of Senwosret III facing west

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DIRECTOR'S FOREWORD

During the Middle Kingdom, Egyptian art reached an unsurpassed high point, producing outstanding works of architecture, sculpture, relief, painting, and jewelry. Excavating, collecting, and studying Middle Kingdom Egypt has therefore been a focal point of The Metropolitan Museum of Art, since the founding of the Department of Egyptian Art in 1906. The publications of the Museum's curators Albert M. Lythgoe (1868–1934), Arthur C. Mace (1874–1928), Herbert E. Winlock (1884–1950), and Ambrose Lansing (1891–1959) substantially advanced our understanding of the Middle Kingdom. Following this tradition, in 1990, the Egyptian Department undertook the excavation of the Middle Kingdom pyramid complex of King Senwosret III at Dahshur. The project is under the direction of Dieter Arnold, who has been assisted by Egyptian Department staff members Adela Oppenheim, Susan Allen, James Allen, Diana Craig Patch, and the late Thomas Scalise. Anna-Marie Kellen, Bruce Schwarz, Eileen Travell, and Peter Zeray of the Photograph Studio and Ann Heywood and Deborah Schorsch of the Objects Conservation Department were important participants. The Metropolitan Museum of Art is pleased to be able to now present the first volume of a projected series describing and analyzing the pyramid site of Senwosret III.

Over a period of nine years, an intensive examination of the remains of these badly ruined monuments has led to the recovery of much of the original architectural form of the complex. The result of this undertaking considerably changes our picture of the development of the Egyptian pyramid complex. Previously, it had been assumed that pyramid complexes reached the peak of their development during the Fourth and Fifth Dynasties of the Old Kingdom, and thereafter fell into rigidity and decline. The inconspicuous remains of the pyramid complexes of the Twelfth Dynasty seemed to support this picture. The information derived from the Museum's excavations at Dahshur presents the pyramid complex of Senwosret III in a different light. Far from belonging to a period of architectural decline, the structures are striking architectural achievements. The development of religious beliefs and evolving formulations of the royal afterlife produced a significant new temple type that pointed the way to the New Kingdom.

These conclusions, based on one of the most prominent buildings of its time, corroborate the impression gained from the observation of other major events that the reign of the great King Senwosret III was a period of considerable religious transformation. Spiritual development is further reflected in sculpture by the numerous preserved portraits of the king, two of the finest examples being the gneiss sphinx and the quartzite face of Senwosret III in the Egyptian collection of The Metropolitan Museum of Art (acc. nos. 17.9.2, Gift of Edward S. Harkness, 1917, and 26.7.1934, Purchase, Edward S. Harkness Gift, 1926).

Support for the fieldwork and publication has been provided by The Adelaide Milton de Groot Fund, in memory of the de Groot and Hawley families. Further funding was provided by Judith and Russell Carson, The Honorable and Mrs. Henry Grunwald, William K. Simpson, Mr. and Mrs. James M. Vaughn, Jr., Roxie Walker and The Bioanthropology Foundation, and Mr. and Mrs. Malcolm H. Wiener.

Philippe de Montebello
Director, The Metropolitan Museum of Art

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William K. Simpson

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Roxie Walker and The Bioanthropology Foundation

Mr. and Mrs. Malcolm H. Wiener

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Notes to the Reader

ARABIC TERMS

deka	Marked stratum, often created by a rough surface paving of *muna*
gebel	Bedrock or solid ground underlying the surface soil or sand
muna	Smear of liquid Nile mud used as mortar or pavement
sebbakhin	Peasants who remove decaying brickwork *(sebbakh)* and use it as fertilizer in their fields
serdab	Cellar, hidden room
tafl	Geological stratum of laminated shale, often used to make pottery and bricks
wadi	Dry riverbed

OTHER ABBREVIATIONS AND TERMS

Alabaster	The term alabaster is used as is common in Egyptology. For differing scientific definitions of the material, see Paul T. Nicholson and Ian Shaw eds., *Ancient Egyptian Materials and Technology* (Cambridge, England, 2000), pp. 59–60; Rosemarie Klemm and Dietrich D. Klemm, *Steine und Steinbrüche im Alten Ägypten* (Berlin, 1992), p. 199.
Batter	Architectural term describing a wall that slopes gently inward
ca.	Circa
CG	Catalogue Général of the Egyptian Museum, Cairo
cm	Centimeter(s)
cubit	Ancient Egyptian measurement equaling 52.5 cm
Diam.	Diameter
Entablature	Horizontal superstructure terminating the upper end of a building, generally composed of an architrave, torus, and/or cornice
finger	Ancient Egyptian measurement equaling 1.875 cm
H.	Height
JdE	Journal d'Entrée of the Egyptian Museum, Cairo
L.	Length
m	Meter(s)
NN	Zero level, not connected with sea level
Orthostat	Large stone slab, set vertically as a revetment at the lower part of a wall
palm	Ancient Egyptian measurement equaling 7.5 cm
Th.	Thickness
W.	Width

GRID AND SURVEYING SYSTEM OF THE SITE

The surveyor Marcel Gruber has covered the excavation site with a grid system of 10 x 10 m squares with the zero point southwest of the pyramid enclosure. The squares have been designated with the letters A–Z from west to east and with the numbers 1–42 from south to north, so that the coordinates of each square consist of a letter followed by a number. In certain areas, the squares were subdivided into units of 5 x 5 meters. These units were designated with the letters a–d, with a in the upper right corner (NW), b in the lower right (NE), c in the lower left (SE), and d in the upper left (SW). For part of the grid system, see plans I, III and VI.

The level of the court of the pyramid complex and the surrounding desert was about 45.50 m NN; the buildings were standing on slightly higher stone platforms, about 45.75 to 45.80 m above NN.

KEY TO THE INITIALS OF DRAFTSPERSONS

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F.A.	Felix Arnold
D.C.	Diego Clausen
B.G.	Barry Girsh
J.L.	Joy Leland
A.O.	Adela Oppenheim
J.P.	Julia Pfaff
T.S.	Thomas Scalise
R.T.	Raymond Theler
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K.M.	Kathy Mucciolo
A.O.	Adela Oppenheim
B.S.	Bruce Schwarz
E.T.	Eileen Travell
P.Z.	Peter Zeray

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In addition to the abbreviations listed in *Mitteilungen des Deutschen Archäologischen Institutes* 30 (1974), the following are used.

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INTRODUCTION

The pharaoh Khakaure Senwosret III was one of the most notable rulers of ancient Egypt, his reign distinguished by extensive military campaigns that resulted in an unprecedented expansion of the country's borders. The king also appears to have reformed Egypt's administration and reshaped religious practice.[1] The length and date of the reign of Senwosret III are controversial and a detailed discussion of these issues is beyond the scope of the present study.[2] However, some evidence gathered at the pyramid complex of Senwosret III tends to point to a reign longer than nineteen years (pp. 116–17).

Reflecting the king's distinction, his pyramid complex at the north end of the royal cemetery of Dahshur must have been one of the major architectural achievements of the Twelfth Dynasty. Numerous New Kingdom visitors' graffiti illustrate the continuing respect that was accorded this unique monument.

The name of the pyramid complex was *B3-nṯrj-ḫprw*. Since the name is determined by the town sign ⊗ (p. 75; fig. 21b), one might ascribe it to the pyramid *city*, but because the same text states that Queen Weret II was buried at *B3-nṯrj-ḫprw*, the funerary nature of the locale is obvious. Assigning the name *Qbḥ-Sn-wsrt* to the pyramid *temple* of Senwosret III is doubtful, because the name has only been found at Lahun and the inscription does not specify to which Senwosret it refers.[3]

Considering its prominence, the complex's complete demolition in the late New Kingdom is difficult to explain; it was so thorough that few features remained visible. The ruins of the monument were discovered relatively early in the history of Egyptology. On September 8, 1839, the young British engineer John Shae Perring (1813–1869) visited the site and commenced the first study of the monument. Perring was engaged in a comprehensive survey of Egyptian pyramids initiated and sponsored by Col. Richard William Howard Vyse (1784–1853), a British army officer during the Napoleonic wars and an amateur Egyptologist, who eventually published the results of their collaboration in a three-volume work entitled *Operations Carried On at the Pyramids of Gizeh* (London, 1840–1842).[4] Perring registered the pyramid of Senwosret III as number 28 on his list of pyramids and also undertook some excavation. In search of the entrance to the pyramid, he removed debris from a 27 x 16 m area in front of the center of the north side, the traditional location of pyramid entrances. Having no success and assuming that the entrance might be further north in the pyramid court, he then cut a 49 x 9 m trench north of the pyramid, again without result. More to his credit, Perring found a block with the cartouche of Senwosret III in a trench at the east side of the pyramid, enabling him to be the first to identify the complex's owner.

Between February and April 1843, an expedition headed by the German Egyptologist Richard Lepsius (1810–1884) visited the Dahshur pyramids and registered the pyramid of Senwosret III as number 47.[5] Lepsius was the first explorer to recognize the location of the causeway, and his surveyors even indicated on their plan such details as the boat pit, the "quartzite hill" (p. 99), and the traces of Perring's trench. However, Lepsius mistakenly registered a pyramid number 48, which he believed he saw to the southeast of the main pyramid in the area of the gate through the original east outer enclosure wall (square U-V/21 on the grid of the present excavation). According to Jacques De Morgan's and our own observations, such a structure does not exist in this area.

The huge craterlike hole that today leads into the center of the pyramid's north side is due to Gaston Maspéro (1846–1916), director of the Egyptian Antiquities Organization from 1881 to 1886. Between 1882 and 1883, determined to discover the king's burial chamber regardless of the cost, he had his men pull out thousands of tons of bricks from the pyramid core, ruining the monument without achieving his goal.[6]

The Dahshur project was resumed twelve years later by Maspéro's successor in the office of director, Jacques De Morgan (1857–1924), a French civil engineer and archaeologist.[7] Assisted by Pierre Vasin and the excavators Gustave Jéquier and Georges Legrain, he worked intensively for a total of six months all over the complex of Senwosret III and the mastaba fields north and south of it. Reis Rubi Hamzarri and his son Khalif Hamzarri are reported to have employed several hundred Egyptian workmen. The course of the expedition can be reconstructed as follows:

De Morgan's First Season

January–February 1894

> Vasin excavates six Old Kingdom mastabas to the south and thirty Middle Kingdom mastabas to the north of the pyramid complex of Senwosret III.

---

[1] For the history of the reign of Senwosret III see Delia, "Senwosret III," being revised for publication; Claude Obsomer, *Les campagnes de Sésostris* (Brussels, 1989); idem, *Sésostris Ier: Étude chronologique et historique du règne* (Brussels, 1995); Robert D. Delia, "Khakaure Senwosret III: King and Man," *KMT* 6 (Summer 1995): pp. 19–33; Claude Vandersleyen, *L'Égypte et la vallée du Nil*, vol. 2 of *De la fin de l'Ancien Empire à la fin du Nouvel Empire* (Paris, 1995), pp. 87–99; Josef W. Wegner, "The Nature and Chronology of the Senwosret III–Amenemhat III Regnal Succession: Some Considerations Based on New Evidence from the Mortuary Temple of Senwosret III at Abydos," *JNES* 55 (1996): pp. 262–63, 249–79.

[2] Detlef Franke, *Das Heiligtum des Heqaib auf Elephantine*, Studien zur Archäologie und Geschichte Altägyptens, vol. 9 (Heidelberg, 1994), pp. xi, 49; Claude Obsomer, *Sésostris Ier: Étude chronologique et historique du règne* (Brussels, 1995), p. 155; Jürgen von Beckerath, *Chronologie des pharaonischen Ägypten* (Mainz, 1997), p. 134; Josef W. Wegner, "The Nature and Chronology of the Senwosret III–Amenemhat III Regnal Succession: Some Considerations Based on New Evidence from the Mortuary Temple of Senwosret III at Abydos," *JNES* 55 (1996): pp. 249–79. In a lecture given at the Institute of Fine Arts, New York in March 2000, Ian Kuniholm announced that dendrochronological tests permitted him to date the wood in one of Senwosret III's funerary boats to the surprisingly early year of 1917 B.C.E. Since these boats were probably built for the transport of the funerary equipment of the king at the end of his life (pp. 106–7), the new date would push the beginning of his reign up to the year 1955.

[3] Petrie, *Lahun* II, p. 27, pl. 30. For the names of pyramids and pyramid cities of the Twelfth Dynasty, see Farouk Gomaà, *Die Besiedelung Ägyptens während des Mittleren Reiches*, vol. 2 (Wiesbaden, 1987), pp. 52–53; H. Altenmüller, "Die Pyramidennamen der frühen 12. Dynastie," in *The Intellectual Heritage of Egypt: Studies Presented to László Kákosy*, ed. Ulrich Luft (Budapest, 1992), pp. 33–42; Ulrich Luft, "The Ancient Town of El-Lâhûn," in *Lahun Studies*, ed. Stephen Quirke (Reigate, 1998), pp. 1–41.

[4] The pyramid of Senwosret III is described in Vyse, *Gizeh*, pp. 57–63.

[5] *LD*, vol. 1, pls. 34–35, and text vol. 1, p. 205.

[6] De Morgan, *Dahchour* I, p. 4.

[7] The edition of De Morgan's memoirs by Andrée Jaunay (*Mémoires de Jacques De Morgan, 1857–1924: Souvenirs d'un archéologue* [Paris, 1997]) contains amusing background information (see pp. 388–408), but does not particularly add to our knowledge of De Morgan's work at Dahshur.

February 17–June 15, 1894
  Excavations are carried out in the pyramid enclosure of Senwosret III.
February 26–28, 1894
  The robbers' (secondary) shaft to the queens' gallery is found.
March 6–7, 1894
  The first treasure is found in the subsidiary queens' gallery.
March 8, 1894
  The second treasure is found in the subsidiary queens' gallery.
April 15, 1894
  De Morgan tunnels under the pyramid base in the hope of finding the king's burial chambers. Half of the men are sent to excavate in the area of the pyramids of Amenemhat II and Amenemhat III at Dahshur.
June 15, 1894
  The work under the pyramid of Senwosret III is interrupted.

De Morgan's Second Season

November 1894
  The crypt of Senwosret III is discovered.

These excavations and their unquestionably stunning results established De Morgan's reputation as a "founding father" in the exploration of Middle Kingdom monuments. While recognizing his achievements in archaeology,[8] a critical observer cannot deny that a major incentive for De Morgan's extensive activities at Dahshur was the search for the treasure contained in undisturbed burials, which were occasionally found in the nineteenth century. In order to expose these hidden riches, walls were pierced and well-preserved chambers were hacked to pieces. Furthermore, only monuments connected with the treasures were recorded, and only the most brilliant objects were transported to the Gizeh Museum, Cairo. The majority of finds were left at the site, and most have disappeared.[9]

Later Excavations

Perhaps in response to reports of elicit excavations, Alexandre Barsanti (1858–1917), the Italian architectural restorer in the service of the Egyptian Antiquities Organization, worked at the site from April 10–15, 1907. Barsanti's men excavated only in the northwest corner of the Senwosret III enclosure, digging through debris that originated from De Morgan's excavation of the queens' gallery, in order to search for overlooked objects.[10] They discovered a few pieces, including sheet gold from the coffins of the royal women, the lid of an alabaster vessel bearing the cartouche of Senwosret III, three uninscribed, greenish stone vessels, a fragment of a gold bracelet, and some gold, carnelian, and faience beads.

Thirty years after his experience as De Morgan's assistant at the pyramid of Senwosret III, the French Egyptologist Gustave Jéquier (1868–1946) returned to the site in an attempt to resolve some outstanding questions. From December 9, 1924 to March 24, 1925, shortly before he started an excavation project near the Mastabat el-Fara'ûn, Jéquier explored the area at the lower end of the causeway of Senwosret III (pp. 92–95) with the unrealized aim of finding the valley temple.[11] It is likely that he used De Morgan's old expedition house, located northeast of the pyramid of Senwosret III.[12] In the 1960s, the house was abandoned by the Egyptian Antiquities Organization and fell into ruins. At the same time the intrusive industrial installation of the Gulf Petrol Company was erected 300 meters southwest of the pyramid complex, occupying the antiquities area northeast of the north pyramid of Snefru.

Metropolitan Museum Excavation

The inadequacy of the exploration and documentation of Senwosret III's pyramid complex, and the need to obtain comparative material for the assessment of the architecture and archaeology of the early Twelfth Dynasty cemeteries at Lisht, prompted this author to reactivate fieldwork at Dahshur. With the enthusiastic support of Philippe de Montebello, Director of The Metropolitan Museum of Art, and with the generous approval of the Egyptian Antiquities Organization, the Egyptian Expedition of the Metropolitan Museum began fieldwork in 1990.

The excavations were directed by Dieter Arnold, assisted by Adela Oppenheim, during the following nine seasons.

I. September 20–November 30, 1990
II. October 12 (date of earthquake)–December 10, 1992
III. September 19–December 20, 1993
IV. September 17–December 17, 1994
V. June 26–September 2, 1995
VI. September 17–December 10, 1996
VII. October 14–December 21, 1997
VIII. September 23–December 10, 1998
IX. October 9–December 16, 1999

The main objective of the first season (1990) was the opening and documentation of the king's tomb and the queens' gallery.[13] The area around the upper end of the causeway (fig. 30, areas D and E) and the southeast corner of the outer enclosure wall (square T/12) were excavated and surveyed, and a small area inside the southeast corner of the outer enclosure wall was cleaned. A few minor trenches were dug at selected points in order to establish the location of the outer enclosure wall (squares H/13, K/14, Q/25, T/12, V/29, W/41, D/43, D/41, B/21, D/21).

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[8] Presented in Andrée Jaunay, *Mémoires de Jacques De Morgan, 1857–1924: Souvenirs d'un archéologue* (Paris, 1997), pp. 331–424. For the work at Dahshur, see pp. 388–408.

[9] Our partial excavation of the ruins of De Morgan's spacious and magnificent house, located northeast of the Senwosret III pyramid enclosure, has brought to light about sixty-eight relief fragments and other less significant finds; the objects had been abandoned in the house and were not removed when it was partially dismantled by the Egyptian Antiquities Organization around 1966. A few of the rediscovered reliefs are included in De Morgan's publications, but the findspots of most pieces remain uncertain. Some of them may originate from the pyramid complexes of Amenemhat II and Amenemhat III or their surrounding cemeteries, which De Morgan excavated concurrently with the pyramid complex of Senwosret III. See here also p. 46, n. 150, p. 141.

[10] Alexandre Barsanti, "Quelques recherches à Dahchour," *ASAE* 8 (1907): p. 192. The whereabouts of the unpublished material is unknown.

[11] Gustave Jéquier, "Rapport préliminaire sur les fouilles exécutées en 1924–1925 dans la partie méridionale de la nécropole memphite: L'avenue de la pyramide de Senousrit III," *ASAE* 25 (1925): pp. 56–61; idem, *Douze ans de fouilles dans la nécropole memphite, 1924–1936*, Mémoires de l'Université de Neuchâtel, vol. 15 (Neuchâtel, 1940), pp. 133–38. There are some pieces from his dig in the Egyptian Museum, Cairo, and they are listed in PM III2, pp. 882–85.

[12] There is the possibility, therefore, that at least some of the material we discovered in De Morgan's house could originate from Jéquier's excavation at the lower end of the causeway (see here p. 93).

[13] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1990–1991," *Orientalia* 61 (1992): p. 251.

During the second season (1992) several sections were opened in order to locate remains of the lower end of the causeway and the valley temple (fig. 30, areas A–C).[14] The valley temple could not be reached, but an architecturally interesting passage under the causeway, which had been previously found by Jéquier, was excavated.[15] In the complex itself, numerous sections to the south of and inside the south temple were examined, pyramid 9 was excavated, a trench was dug from pyramid 1 to the north outer enclosure wall (square I/41), and the east end of the pyramid temple was opened.

One objective of the third season (1993) was to uncover more pieces of the relief decoration from the pyramid temple and the area of the south temple, in order to understand the functions of the complex's temples.[16] Our efforts were abundantly rewarded by the discovery of more than 2,500 relief fragments. Another objective was to review the building history of the aboveground structures. This investigation not only solved many problems concerning the chronological development of the complex, but also led to the recognition that a large temple had stood in the south court, which was the source of the relief fragments found in the area. During this season we also restored the secondary ("robbers'") shaft leading into the queens' gallery, and secured its entrance by means of a large chamber at desert level.

The main task of the fourth season (1994) was to continue the excavation of the pyramid temple proper and its surrounding area. The work in the temple was finally halted by the masses of loose sand that had fallen into De Morgan's central trench.[17] However, a great number of relief fragments and architectural elements were collected. Toward the end of the season, the tomb of Queen Weret II (pyramid 9) was found, along with a small cache of her jewelry, now in the Egyptian Museum, Cairo.[18] We also managed to clear one of De Morgan's tunnels inside the king's pyramid, which provided us with a rare opportunity to study the roof construction of the royal crypt. Excavations in the area of the south temple continued, and the remains of a corridor connecting the south temple to the inner pyramid court were studied.

The work of the fifth season (1995) concentrated on reexcavating the shafts of pyramids 7 and 8, clearing the southeast corner of the king's pyramid, and studying the relief fragments from the pyramid temple and south temple. In the north cemetery, inscribed casing slabs from the mastaba of the vizier Nebit I were found (north mastaba 18). To the north of it, the mastaba of Nebit II? (north mastaba 31) was discovered, together with the undisturbed burial of his wife Sit-Werut.[19]

The sixth season (1996) was devoted to the conservation of the burials of Sit-Werut and her husband in north mastaba 31, and to the excavation of the east sides of north mastabas 18 and 31.[20] Within the pyramid complex of Senwosret III, the east chapels of pyramids 3 (Princess Itakayet) and 8 (Queen Weret I) were discovered. The search for a corresponding structure at pyramid 7 revealed that it lacked an east chapel.

The main achievement of the seventh season (1997) was the excavation of the east chapels of pyramids 2, 4, 8, and 9. The excavation of the north chapel of pyramid 8 produced a gratifying number of fragments of wall decoration, revealing the name and titles of the owner, the mother of the king, Queen Weret I.

During the eighth season (1998), a huge debris mound was removed in front of the south side of the east face of the king's pyramid, exposing a large area of the inner court south of the pyramid temple. This operation resulted in the recovery of several thousand relief fragments from the pyramid temple and indicated that the area was used during the temple's demolition. The excavation of the north chapel of pyramid 8 (Queen Weret I) was completed, and the north sides of pyramids 4 and 7 were explored in the futile search for north chapels. The excavation of the east chapel of pyramid 9 (Queen Weret II) was concluded. On the south side of the east outer enclosure wall, projection 9 was excavated and restored. The remains of the burial of Sit-Werut in north mastaba 31 were further recorded and conserved. Much effort was expended on rebuilding the north entrance passage of Queen Weret II (pyramid 9), which had begun to collapse.

During the ninth season (1999), excavation work continued along the south half of the east side of the pyramid of Senwosret III, fully exposing the pyramid foundation and the brick core. Part of a post-New Kingdom cemetery with over 100 burials was studied in the area southeast of the pyramid temple (mainly in squares T/30–31). A special magazine for the storage of human remains was built on top of the queens' shaft. The recording and recovery of the burial of Sit-Werut (north mastaba 31) was concluded.

Since the manuscript was still in press after the conclusion of the 2000 season, it has been possible to include the most important results and to revise sections of the text.

Because of ongoing fieldwork and the large unfinished or untouched areas of the concession, the publication of the present volume entails major uncertainties and risks. Nevertheless, after nine years of excavation it seems desirable to make some of our results available, particularly since our discoveries may be of significance to other Egyptologists. While some areas or building units of the pyramid complex have been sufficiently explored to allow a final evaluation, other sections, for example, the south temple, await further study. Continued excavation will certainly result in new ideas and the revision of previously published theories.

The following colleagues provided their services to the expedition during the first nine seasons. Their hard work, diligence, patience, and good humor is deeply appreciated.

James P. Allen, epigrapher (1993–94, 1996)
Susan Allen, pottery specialist (1993–99)
Dorothea Arnold, Egyptologist and pottery specialist (1990, 1995)
Felix Arnold, student (1990–91)
Bettina Bader, pottery specialist (1998)
Michelle Berenfeld, student (1994)
Bob Brier, physical anthropologist (1995)
Diego Clausen, architect (1993)
Kathlyn M. Cooney, Egyptologist (1997)

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[14] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1992–1993," *Orientalia* 63 (1994): p. 387.

[15] See pp. 92–95.

[16] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1993–1994," *Orientalia* 64 (1995): pp. 264–65.

[17] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1994–1995," *Orientalia* 65 (1996): pp. 279–80.

[18] Oppenheim, "First Look," pp. 10–11; idem, "Jewellery," p. 26; idem, "Treasures," pp. 141, 146–47.

[19] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1995–1996," *Orientalia* 66 (1997): pp. 272–73; Dieter Arnold, "Two New Mastabas of the Twelfth Dynasty at Dahshur," *Egyptian Archaeology* 9 (1996): pp. 23–25.

[20] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1996–1997," *Orientalia* 67 (1998): pp. 360–61.

Gregory Dinkins, photographer (1990)
Barry Girsh, draftsperson (1992–95)
Marcel Gruber, surveyor (1992–94, 1996, 1998)
Gilbert Gsponer, architect (1992)
Ann Heywood, conservator (1999)
Salima Ikram, Egyptologist, investigator of food and animal remains (1997)
Anna-Marie Kellen, photographer (1997–99)
Valérie Lacoudre-Looten, conservator (1996)
Joy Leland, draftsperson and photographer (1995–96, 1998–99)
Anne Liégey, conservator (1996, 1998–99)
Caitlin McCaffrey, photographer (1996)
Gaille MacKinnon, physical anthropologist (1999)
Christine Marshall, physical anthropologist (1999)
Kathy Mucciolo, photographer (1994–95)
Adela Oppenheim, Egyptologist (1990–99)
Jennifer Palmer, student (1996)
Ewa Parandowska, conservator (1994)
Diana Craig Patch, Egyptologist (1999)
Julia Pfaff, draftsperson (1990)
Yelena Rakic, student (1993, 1995)
Thomas Scalise, draftsperson (1997–99)
Deborah Schorsch, conservator (1995)
Bruce Schwarz, photographer (1997–99)
Isabel Stünkel, Egyptologist (1998–99)
Iman Thalib, draftsperson (1992)
Raymond Theler, architect (1990–94, 1996)
Eileen Travell, photographer (1996)
Lisa Victor, architect (1990)
Roxie Walker, physical anthropologist (1998–99)

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Rainer Stadelmann, longtime friend and former director of the German Archaeological Institute in Cairo, always lent us his support. Our gratitude also goes to Günter Dreyer, current Director of the German Archaeological Institute. The American Research Center in Egypt, formerly under the direction of Mark Easton, was a reliable source of assistance and Amira Khattab provided friendly support.

The author and the members of the expedition wish to acknowledge and thank the faithful, dependable, and hardworking laborers from Qurna, who have served archaeology so well over the past thirty years. Their names should not remain unrecorded. Foremost are Reis Ali Aoud Ahmed and Reis Mohamed Ali Ahmed, followed by Nubi Ahmed Ibrahim, Tajib Hassan Ibrahim, and the mason Hussein Hassan Ali.

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The artist Richard Velleu earns praise for his excellent drawings, and Phyllis Saretta is thanked for her untiring editorial work. Tony Pizzo and Paul Hoffmann of The Stinehour Press patiently oversaw the production of the book.

While this publication was in press, the members of the Egyptian Department and the Expedition were deeply saddened by the untimely passing of Thomas Scalise. Thomas joined the excavation as draftsperson during the 1997 season and began working in the department the following year. His fine artwork is included in this volume and will be prominently featured in future volumes on the relief decoration of the pyramid temple, which formed the core of his work for the department. The beauty of his drawings and his commitment to and involvement in the excavation were important elements in the success of our projects and will be sorely missed. More importantly, the members of the department and the expedition along with our Egyptian colleagues, friends, and workmen will long miss and remember Thomas's warmth, humor, and friendship.

PART ONE

THE CENTRAL PYRAMID COMPLEX

> *"To continue the work in the east [of the pyramid] became futile because I came to the conclusion that the royal funerary temple was completely destroyed."*[21]
>
> *Jacques De Morgan (1895)*

The royal funerary precinct of Senwosret III is situated on a flat desert plateau that clearly determined its position and north-south extent. To the north, where the surface of the plateau narrows considerably, and to the south, where the surface slopes down into a wadi, a large monument could not have been constructed without adding substantial amounts of material to create a flat surface. In fact, when the complex was later enlarged in the south, masses of sand and builders' debris were needed to level the area. To the west, however, the vast desert surface did not impose such limitations; the enclosure could also have been built farther east, closer to the edge of the plateau. The complex's building units were not all constructed at the same time and did not follow a single master plan, but were part of a complicated project that underwent at least one major and several minor revisions. (A detailed history of this development is presented on pp. 116–17.) The complex was surrounded by a system of enclosure walls articulated by projections and recesses similar to those known from earlier royal funerary monuments.[22]

The royal funerary precinct was probably maintained through the Second Intermediate Period, and some of its cult installations were still in use during the Eighteenth and early Nineteenth Dynasties. Several areas, including at least parts of the enclosure walls, seem to have been destroyed by an earthquake, probably during the Thirteenth Dynasty,[23] and many of the fallen bricks were removed and presumably reused. From the Saite to the Christian periods the remaining parts of these walls were further damaged by pits dug for poor burials. Probably later, *sebbakhin* removed much of the remaining brickwork, in many places dismantling the walls down to the foundation. Often, only the bricks in the core of the foundation were pulled out, leaving a thin, shell-like outer layer. When we began our work, all aboveground traces of the enclosure walls had vanished, but excavation has now brought to light numerous sections of these walls. In some cases only the foundation is preserved, while in other areas portions of the walls still stand as high as one meter above the ancient ground level.

The original pyramid complex of Senwosret III was considerably smaller than the final version. It was nearly square, and it was enclosed by two concentric walls: an inner one made of stone, and an outer one made of brick. Inner and outer pyramid courts were created by the two enclosure walls. The inner court contained the king's pyramid, the pyramid temple, the king's north chapel, the shaft leading to the king's tomb, the queens' shaft, and the shafts of pyramids 7 and 9. The outer court originally included only the three larger south pyramids (7–9); the four smaller north pyramids (1–4) were probably added later. This first plan followed the standard arrangement of earlier Middle Kingdom pyramid complexes such as those of Senwosret I, Amenemhat II, and Senwosret II (p. 116), a type that had its origins in the late Old Kingdom.

After the completion of the original pyramid complex of Senwosret III, circumstances that are not yet completely understood led to substantial additions and enlargements.

The Original Outer Enclosure Wall

(pls. 2–4)

GENERAL FEATURES

Middle Kingdom brick walls usually rest on several courses of brick foundations, which are wider than the wall itself and form a kind of visible platform along its base. Detailed measurements of the foundation of Senwosret III's original outer enclosure wall could be taken at several points (see below), but the exact dimensions of the aboveground brickwork are still difficult to determine because of the ruined condition of the walls and the complete loss of the corners.

The methods used for building in brick and the variations in the size of individual bricks did not allow builders to achieve the same precision that was possible with stone. One can therefore only reconstruct the dimensions intended by the builders by calculating the cubit measurements, which tend to be whole numbers. On the basis of all available data we can conclude that the builders intended the original outer enclosure to be 365 x 381 cubits (191.625 x 200.925 m; the actual dimensions on the plan are 191.5–192.6 x 199.6 m).

EAST-WEST DIMENSIONS OF THE FOUNDATIONS OF THE ORIGINAL PYRAMID COMPLEX (fig. 36)

East brick wall	8 cubits	=	4.200 m
Outer east court	38 cubits	=	19.950 m
East stone wall	5 cubits	=	2.625 m
Inner east court	31 cubits	=	16.275 m
Pyramid	206 cubits	=	108.150 m
Inner west court	26 cubits	=	13.650 m
West stone wall	5 cubits	=	2.625 m
Outer west court	38 cubits	=	19.950 m
West brick wall	8 cubits	=	4.200 m
Total	365 cubits	=	191.625 m

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[21] De Morgan, *Dahchour* I, p. 51.

[22] Enclosure walls with these features were built at Abydos and Hierakonpolis during the first two dynasties, and then at Saqqara by Djoser and Djoserti-Sekhemkhet. In the Twelfth Dynasty, Senwosret II revived this tradition at Lahun (Petrie, *Lahun* II, p. 5, pl. 23), and Amenemhat III followed it at Dahshur (Arnold, *Amenemhet III*, pp. 66–71, figs. 33–34, pls. 30–31, 62) and probably at Hawara. Finally, King Khendjer built the last royal funerary complex with recessed walls at South Saqqara (Jéquier, *Deux pyramides*, pp. 7–10, figs. 6–7).

[23] The earthquake must have occurred when the walls were still standing, probably not later than fifty to one hundred years after their construction. The *terminus ante quem* is provided by the layers containing Ramesside potsherds and fragments of reliefs from the destroyed south temple that cover the fallen bricks.

NORTH-SOUTH DIMENSIONS OF THE FOUNDATIONS OF THE ORIGINAL PYRAMID COMPLEX (fig. 36)[24]

North brick wall	8 cubits	=	4.200 m
Outer north court	40 cubits	=	21.000 m
North stone wall	5 cubits	=	2.625 m
Inner north court	25 cubits	=	13.125 m
Pyramid	206 cubits	=	108.150 m
Inner south court	25 cubits	=	13.125 m
South stone wall	5 cubits	=	2.625 m
Outer south court	59 cubits	=	30.975 m
South brick wall	8 cubits	=	4.200 m
Total	381 cubits	=	200.025 m

The outer enclosure wall was built on a foundation approximately 8 cubits thick (4.2 m), which rose about half a cubit above ground level. The actual wall was 4 cubits thick (2.1 m), excluding the projections, which ideally were 3 cubits deep (1.575 m) and 4 cubits wide (2.1 m). In front of the projections, the foundation protruded one cubit from the base of the wall. The recesses between the projections were intended to be 5 cubits wide (2.625 m), but were actually slightly larger (2.72–2.74 m); this discrepancy could have resulted from the need to harmonize the sequence of projections and recesses with the total length of the wall.

The corner projections, none of which is sufficiently preserved to measure, could have caused irregularities in the plan. Geometrical considerations dictated that the corner projections had to be larger than the projections along the walls. If the corner projections had not been made larger, their side walls would have separated from the two flanking, sloping recesses near the top of the wall (fig. 1). Based on an estimate of the number and dimensions of the projections and recesses, the corner projections must have been at least 6 cubits wide (3.15 m).

As is usual in Egyptian architecture, the fronts of the projections and recesses were battered. A slope of about 84–85° was measured, suggesting an intended batter of 82°, an angle that equals the frequently used ratio of 1 palm of setback for every 1 cubit of height.[25] Because of the wall's batter, its thickness was reduced to about 1 m at the top. The top of the wall was flat, probably had a rounded front edge, and did not have a parapet. With a reasonable degree of certainty the height of the complete wall can be calculated to have been 6.3 m.

All visible parts of the enclosure wall were coated with a heavy layer of whitewashed mud plaster. One wonders whether the upper part of the wall was painted with a "window" pattern (pp. 23–24), but no evidence for such a design remains. Since brick walls tend to crumble rapidly, the protective mortar coating needed to be regularly maintained. According to Anne Liégey, the preserved mud plaster on the wall shows that at least two coats had been applied, suggesting a later repair.

The recesses and all three sides of the projections were each articulated with two long, vertical grooves, which varied in width according to their position:

front of the projections	41–45 cm
sides of the projections	30–33 cm
front of the recesses	55–58 cm

The inconsistency in the width of the grooves resulted from the builders working with bricks of a roughly standard format.[26] Forming projections, recesses, and grooves with bricks of a fixed size entailed considerable problems, which were further aggravated by the batter of the wall.[27] As a result, in many places irregularities in the brickwork were concealed by modeling the grooves with heavy layers of plaster.

The lack of a preserved sequence of projections and recesses in the original outer enclosure wall and the uncertainty about the dimensions of the corner projections make it impossible to calculate the exact number of these features. An example of the difficulties is illustrated by the east part of the south wall, where one projection (number 7, counting from east to west) and one recess are preserved in square R/20. Extrapolating the entire sequence from the preserved projection 7 would result in a very small recess at the southeast corner. A somewhat regular arrangement of projections and recesses can only be achieved by reducing the width of the last five recesses from 5 to 4½ cubits. But why would there have been such a discrepancy?[28] The existence of the gate between projections 6 and 7 does not solve the problem, because this structure belongs to a later building phase.

However, the distribution of the projections and recesses at the south end of the east wall can be accurately reconstructed. A sequence consisting of a corner projection 6 cubits wide followed by three recesses and projections, each respectively 5 and 4 cubits wide, would position the original main gate in the recess between projections 4 and 5, exactly where it is actually located.

Details of the excavated portions of the original outer enclosure wall are given below; they are arranged according to excavation season and square.

1990

D/21) Near the west end of the south side remains of the original outer enclosure wall were traced. Here, the interior of the wall was destroyed deep into the foundation. Only the whitewashed outer faces were preserved, the core of the wall having been hollowed out by brick robbers. The wall was 4.32 m thick at this point.

B/21) At the southwest corner of the original outer enclosure wall, bricks had been removed to a great depth, and we could not reach the point where the original wall connected to the later outer enclosure wall. The juncture between the two walls may still be preserved farther down.

1992

I/40–41) North of pyramid 1 a long north-south trench was dug; it revealed a section of the original outer enclosure wall as well as the southernmost of the two Archaic shafts (pp. 107–8).

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[24] The total length was obtained from direct measurements of the southeast and northeast corners of the original outer enclosure wall. The result was confirmed by measuring the northeast, southeast, and southwest corners of the later outer enclosure wall.

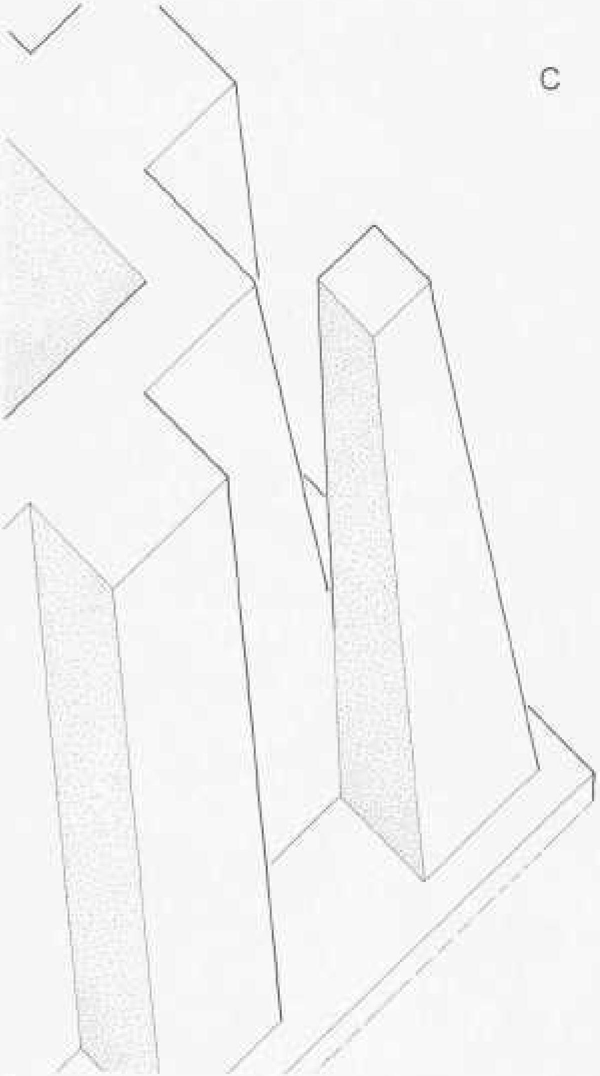
[25] Borchardt, *Sahu-re*, p. 67.

[26] The bricks used throughout the pyramid precinct are not uniform in size, but vary from one brick to the next. The dimensions range from about 10.5 x 19 x 39 cm to 13 x 22 x 43 cm. The thicknesses often differ, because mud cushions can adhere to the underside during the manufacturing process.

[27] The complicated niche constructions of the Archaic period mastaba tombs at Saqqara were facilitated by the use of much smaller bricks (about 7.5 x 11.5 x 29 cm).

[28] The possibility must be considered that the enclosure wall of Senwosret III contained a number of dummy entrances similar to the fifteen false gates in the Djoser complex. Such false gates also appear on the decoration of Senwosret III's sarcophagus (see pls. 28–29). They would not necessarily have created inconsistencies in the wall, because such gates were formed by a recess between two projections.

The foundation had been hollowed out by brick robbers, who left only the outer shell in place with remains of whitewash on the north face. The wall was 4.20 m thick, which corresponds to measurements taken at other sections of the outer enclosure wall.



D/41) The northwest corner of the original outer enclosure wall was exposed. The juncture between the original wall and the later extension (p. 92) could not be identified, but it may exist at a deeper level. Only the exterior face of the north wall was excavated. It bore remains of whitewash.

R/20) In a later building phase, an approximately 6 m wide opening was cut in the south wall of the original outer enclosure, between 24 and 30 m west of the southeast corner (pp. 96–97). A corridor through this opening connected the later southeast court with the inner pyramid court (pls. 4b, 121a; plan III), or more generally, the upper end of the causeway with the pyramid temple. The south wall was cleared along a stretch between 17 and 35 m west of the southeast corner. East of the opening, the enclosure wall had been dismantled down to the surface of the foundation platform, leaving no trace of either projections or recesses.[29] Directly west of the opening, however, remains of two projections were preserved (numbers 7 and 8). It is probable that a sequence of five or more projections and six recesses remain standing to a height of about 60–80 cm under the debris between here and our next section to the west (see below, squares N/20–21). The outer shell of the wall was well preserved, but its interior had been hollowed out by intrusive burials. In order to ensure the preservation of the projections and to indicate the wall's position to those visiting the site, we restored projections 7 and 8 to a height of 1 m. The dimensions of these projections, recesses, and grooves were identical to the measurements of those same features taken at the later outer enclosure wall.

I/21) We examined the juncture between the original south outer enclosure wall and the later north-south dividing wall that separates the southeast and southwest courts (p. 105; pl. 150). Intrusive burials and *sebbakhin* had unfortunately destroyed the brickwork down to the surface of the foundation platform, so that no projections and recesses could be traced. The excavation demonstrated, however, that the original outer enclosure wall was completed and plastered before the north-south dividing wall was attached to it.

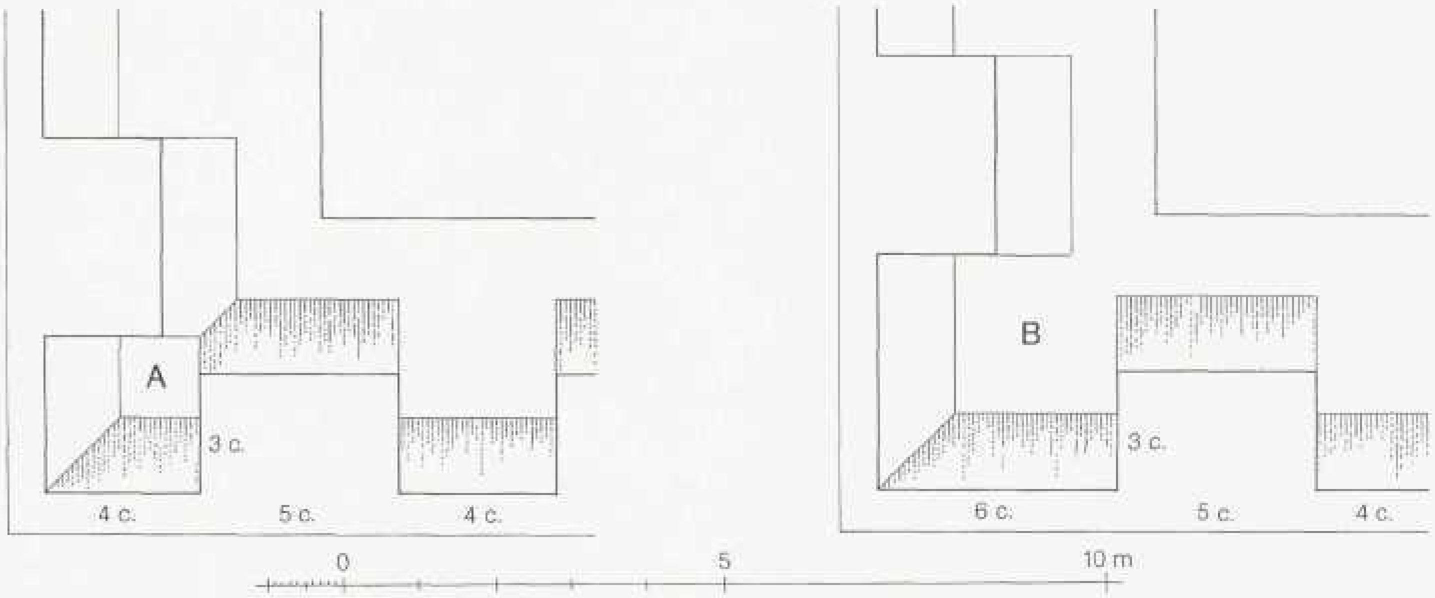


Fig. 1. Illustration of the problem of corner construction in paneled walls: *A, C)* Corner and wall projections of equal width. *B)* Enlarged corner projection. c. = cubits. Drawings D.A.

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[29] The flat desert surface further to the east suggests that the east end of the wall is in the same poor state of preservation.

1993

N/20–21) A section in the south wall 30 m west of the opening in square R/20 exposed one recess and the two projections flanking it (numbers 14 and 15). They were preserved to a height of 50 cm and covered with whitewashed mud plaster.

T–U/19–20) Excavation of the southeast corner of the original outer enclosure wall (fig. 1; pls. 2A, 4a) revealed its juncture with the later extension of the complex. All remains of the aboveground brickwork have disappeared due to the activities of brick robbers and grave diggers, who also hollowed out the foundation.

U/21) A section of the east wall extending from about 15 to 22 m north of the southeast corner was excavated. Remains of the original gate were discovered (see below; pls. 3, 4c–d).

V–W/39) A section in the northeast corner exposed portions of the wall's foundation (pl. 2B). Brick robbers had reduced the remains to a shapeless cake of mud, and they were further damaged by intrusive surface burials. No aboveground remains of the wall were preserved.

M/40) We dug a long north-south trench east of the north chapel of the king's pyramid, revealing a section of the original north outer enclosure wall immediately north of pyramid 3 (Itakayet). The wall was preserved to a height of about 50 cm above its foundation platform. One recess flanked by two projections was preserved along with traces of white plaster, which still adhered to the surface of the wall. The inner side of the wall was covered by a thick mass of mud and bricks that obscured its exact outline. The brickwork was again badly damaged by intrusive burials. That this portion of the wall was still standing indicates that the later extension of the complex to the north (p. 107) did not entail the demolition of the original north wall.

1998

Q/40) A north-south trench between the north outer enclosure wall and the brick core of pyramid 4 exposed a short but well-preserved part of a 47 cm high projection and a recess. The wall was 4.27 m thick and stood 45.80 m above NN on a 97 cm high brick platform; 20 cm of the platform rose above ground level and was plastered, while the lower section consisted of unplastered foundation courses. The surface of the court was 45.56 m above NN south of the wall and 45.60 m above NN north of the wall. The brickwork was damaged by intrusive burials.

1999

U–V/30–31) The removal of a high debris dump left by De Morgan east of the center of the pyramid temple exposed an 11 m long section of the outer enclosure wall. The wall was much damaged by *sebbakhin* and later burials, but enough bricks remained to establish its east and west edges and a thickness of 4.21–4.23 m. The four preserved courses of bricks did not reach the top surface of the foundation platform. The top surfaces of the courses were: I) 44.95–45.01 m above NN; II) 45.08–45.14 m above NN; III) 45.25–45.27 m above NN; IV) 45.35–45.39 m above NN. The damaged brickwork does not preserve a gap for the stone foundation of a gateway, which might be expected in this central location.

THE ORIGINAL MAIN GATE

(pls. 3, 4c–d)

In 1993, a gap 2.5 m wide (5 cubits) was found in the east wall of the original outer enclosure, 17.80 m north of the southeast corner. This interruption in the wall is the remains of the original main gate into the complex. According to our calculations, the gate must have fit exactly into the recess between projections 4 and 5 (starting at the southeast corner), both of which are completely destroyed. Excavating below the gap, we found five rows of bricks that served as the subfoundation for a limestone sill, a construction similar to that of the other gateways in the complex. The stone sill itself has disappeared and along with it the outlines of the frame, a particularly regrettable loss, because we do not know how entrances were constructed in paneled brick walls. Did the construction of this entrance imitate the stone gate in the Djoser enclosure? In that case we would have to reconstruct a narrow, high gateway leading through the recess between the two flanking brick projections. The doorframe would have been constructed completely in stone in order to carry the stone architrave. The underside of the architrave could have been in the form of rounded beams, again following the Djoser prototype.[30] The reconstruction of a gate with a brick arch is ruled out by the nature of the subfoundation, which implies that there was a heavy stone foundation supporting a stone construction.

The placement of a gate in the east wall, north of the southeast corner, follows the plan of the Djoser complex rather closely. Available evidence also indicates that Senwosret III's original plan did not include a causeway, another point of similarity to the Djoser complex. A causeway leading into the new south court was added only after the enlargement of the complex to the south. However, the original entrance to the outer court of the complex continued to be used after the construction of the new entrance and causeway. Modest brick remains show that after the completion of the gate, a kind of *avant-porte* was constructed in front of it.[31] Six rectangular limestone slabs arranged in two rows in the center of the east wall of this forecourt indicate that it had a stone doorway. The walls of the *avant-porte* were too thin to have reached a considerable height or to have carried a roof; they probably delineated a space that served as some sort of waiting area or a guardhouse.

THE PASSAGE THROUGH THE SOUTH WALL

(pls. 4b, 121a; plan III)

De Morgan correctly included a gap between projections 6 and 7 (in square R/20; pp. 21, 96–97) on his plan, connecting the later southeast court with the original outer pyramid court.[32] The bricks on either side of the gap have roughly broken edges, indicating that the opening was not constructed, but cut through the already existing wall. This opening and the stone corridor were needed to connect the newly added south temple with the inner pyramid court. In order to accommodate the corridor, projections 6 and 7 were cut in half. Here again, the stone masonry that presumably framed the opening and the corridor has disappeared, leaving questions similar to those raised by the traces of the original main gate in the east wall (see above). The reconstruction of the passageway is therefore hypothetical. It must be stressed that this south "gate" was not an independent structure, but only an opening that allowed the stone corridor to pass through the wall. Since the corridor was not as high as the enclosure wall, the space above this opening would have been closed once the corridor roof was completed. The rebuilt portion of the wall was probably decorated with two grooves on its south (exterior) side.

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[30] Jean-Philippe Lauer, "Restaurations et 'anastylose' dans les monuments du roi Zoser à Saqqarah (1927–1947)," *ASAE* 48 (1948): pp. 351–66.

[31] The expression *avant-porte* is used in French publications to describe small forecourts added to the front of temple gates in the New Kingdom and Ptolemaic Period.

[32] De Morgan, *Dahchour* I, fig. 105. De Morgan did not recognize either the passages north and south of the gap or the separation of inner and outer pyramid courts.

The Stone Inner Enclosure Wall

(figs. 2–3; pls. 5, 31, 37b–d, 39–40, 50, 153a, 154–55)

The nearly square inner pyramid court, which was an element of the original plan, was enclosed on all four sides by what must have been a magnificent stone wall (fig. 2).[33] The inner court was 25 cubits wide (13.125 m, measured from the foot of the pyramid slope) on the north and south, 26 cubits wide (13.65 m) on the west side, but 31 cubits wide (16.275 m) on the east side;[34] this eastward extension was needed to accommodate the small pyramid temple. Unlike the pyramid courts of the Old Kingdom and that of Senwosret I at Lisht, the inner pyramid court was not paved with stone slabs, but seems to have consisted only of the leveled desert surface covered with a 20–30 cm thick layer of pebbles. Within the court were the king's north chapel, the pyramid temple, the entrance shafts of pyramids 7 and 9, the queens' (northeast) shaft, and the king's shaft.

The enclosure wall measured 266 cubits north-south and 273 cubits east-west (139.65 x 143.325 m).[35] All that remains in situ is the subfoundation of the wall, which consists of two to three courses of bricks carefully arranged in six rows of headers. The subfoundation is 2.60–2.65 m wide, suggesting that the stone platform for the wall was 5 cubits thick (2.625 m). The top surface of the brick subfoundation was at a level 44.66–44.86 m above NN. Since the level of the surrounding courts was about 45.50 m above NN, one can estimate the height of the now-missing stone foundation to have been 64–84 cm.

During the course of the excavation, a considerable number of scattered blocks and fragments of the wall itself have come to light, and a few of these are incorporated into the reconstruction drawing on figure 2. Pieces were found on all sides of the pyramid, in front of the pyramid temple and the king's north chapel, at pyramids 2, 3, 4, 7, 8, and 9, and near the pyramid's southwest and southeast corners. These fragments show that the stone inner enclosure wall had the same projections and recesses as the brick outer enclosure wall, but at a scale of about one-half that of the brick walls.[36]

The front of the projections and the recesses had a batter of about 83°, while the sides of the projections were vertical. Both the projections and the recesses were decorated with two grooves similar to those on the brick walls. The top of the wall's outer face was additionally decorated with a "window" pattern of seven horizontal rows of slightly sunken rectangles,[37] each about 4.5 x 5.7 cm (their arrangement is reconstructed in fig. 2).[38] This decorative element certainly corresponds to a feature found in Archaic brick architecture that is believed to represent either putlogs or the heads of transverse beams rein-

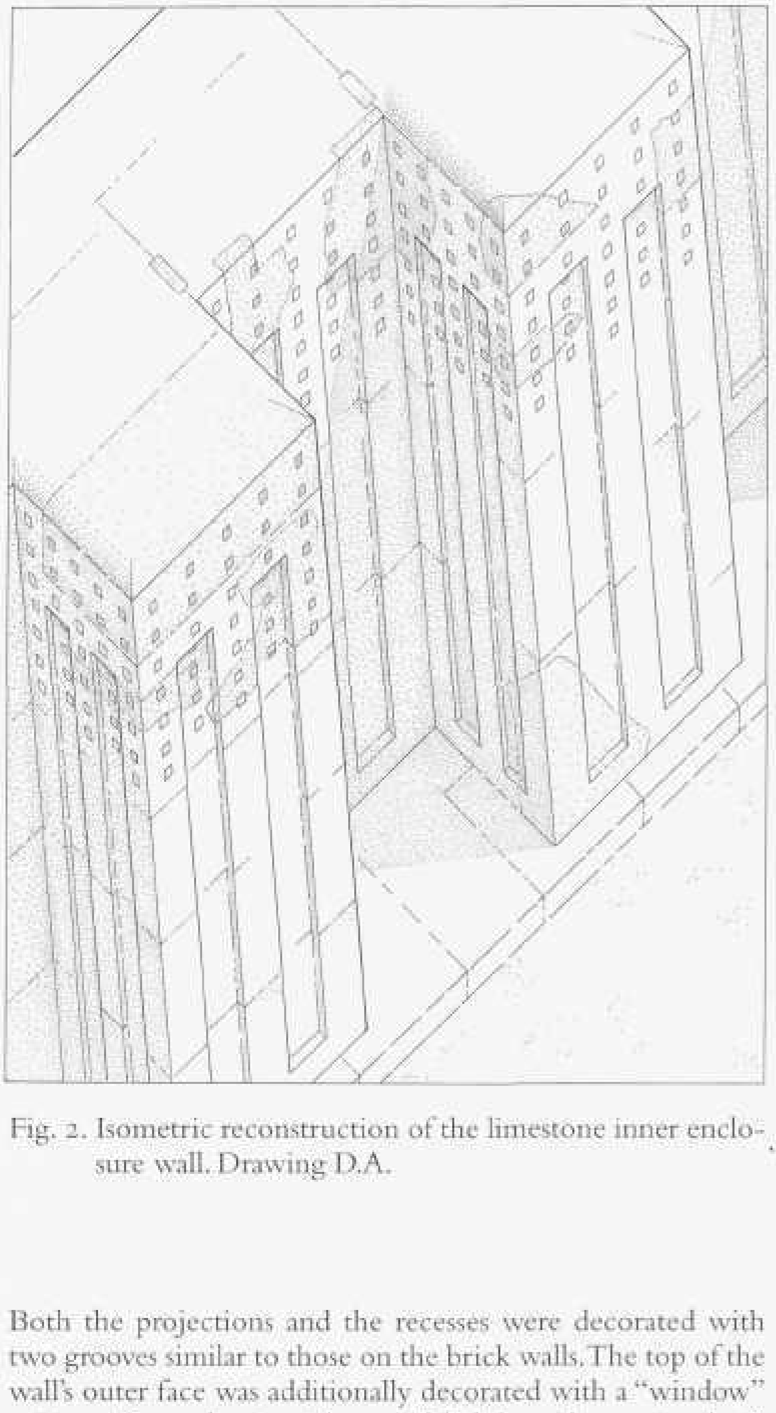

Fig. 2. Isometric reconstruction of the limestone inner enclosure wall. Drawing D.A.

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[33] The existence of this inner wall was not recognized until 1993, but could have been anticipated from the occurrence of similar walls surrounding other Middle Kingdom pyramids (see below). Another clue was De Morgan's publication of a wall block with a "window" pattern, which he mistook for the remains of a sarcophagus, although he did wonder about its shape. The piece is actually the coping stone of a projection (De Morgan, *Dahchour* I, p. 53, fig. 114).

[34] Assuming a pyramid base length of 206 cubits. A pyramid base length of 204 cubits would reduce the width of the pyramid court to 26 and 33 cubits.

[35] Since no corners have been excavated, the total measurements can only be calculated.

[36] This type of offset-inset wall can also be reconstructed with the help of the symbolic ornamentation on the bottom of several royal sarcophagi found in the pyramid complex (see here pp. 36–37, 72, 80).

[37] The wall of the Djoser complex has eight rows.

[38] Eight rows of "windows" are found on the stone enclosure wall of the Djoser precinct, on the granite sarcophagi of Senwosret III and Queen Weret II (see here pp. 36–37, 80), and on the sarcophagus in tomb 7 at Lahun (Petrie, *Lahun* II, pl. 23).

forcing the brickwork.[39] By the Middle Kingdom, the motive had long since lost its original meaning and had become a decorative element.

A few blocks include the entire 1.12 m width of a projection, and a preserved block suggests that the width of the recesses was 1.35 m. Excluding the projections, the thickness of the actual wall was 1.45 m. A few pieces preserve the 87.5 cm depth of the projections. The grooves and the raised areas separating them were 27 cm wide in the recesses, 22.4 cm wide on the front of the projections, and 17.5 cm wide on the sides of the projections.

Some fragments show that the top of the wall was not flat, but sloped outward in order to drain water, and had a noticeable curved coping along the edges. Based on the remains of the top course, the block structure of the wall seems to have been skillful and systematic. The top course of the wall consisted of one block covering one recess and two blocks (arranged one behind the other) covering one projection. An elongated keystone that was sunk into a groove cleverly locked the blocks together. At some point, visitors illicitly climbed the wall, leaving outlines of their feet and other figures scratched into its top surface. The wall's height can only be estimated, but based on the proportions of the projections, one would expect that it was about five cubits high (2.625 m).

The dimensions of the corner projections remain unknown. In contrast to the brick outer enclosure wall, these corner projections did not need to be wider than the projections along the walls (pp. 20–21; fig. 1). Since the inner wall had different proportions than the outer wall, the corner projections of the inner wall would not have become disengaged as they approached the top.

Based on the recovered dimensions, one can estimate that there were fifty-seven projections and fifty-six recesses along the shorter east and west walls, and fifty-nine projections and fifty-eight recesses along the longer north and south walls. The rationale behind the number of these features is not obvious and the proportions are not clear, suggesting that this estimate may be incorrect. Instead, it is possible that the wall was decorated with false gates similar to those found in the Djoser enclosure wall and depicted on sarcophagi (fig. 25; pls. 28–29). David Johnson, who has prepared computer reconstructions of the complex of Senwosret III, concludes that five gates in the east, four in the west, and three each in the north and south would perfectly match the available space. However, archaeological evidence for such gates is lacking.

Similar paneled stone walls enclose the pyramids of Amenemhat II,[40] Senwosret II,[41] Amenemhat III at Dahshur,[42] and Khendjer.[43]

KNOWN DIMENSIONS OF WALLS (IN METERS)

	Width including towers	*Width excluding towers*	*Height of wall*
Senwosret II	1.77	0.92	1.41
Senwosret III	2.625	1.45	2.625
Khendjer	3.0	2.0?	ca. 2.50

The brick subfoundation of the stone inner enclosure wall was uncovered in the following squares.

S/28–31) In front and southeast of the destroyed pyramid temple a 40 m long section of the subfoundation was cleared during the 1992–94, 1996, 1998, and 2000 seasons (pls. 31, 37b–d, 39). The subfoundation consisted of two courses of bricks, the upper one 44.86–44.91 m above NN. All bricks were laid as headers. The upper layer of debris covering the bricks consisted of mud and sand that originated from the pyramid slope. Below was a tightly packed accumulation of limestone chip that included parts of blocks from the stone inner enclosure wall and numerous important relief and architectural fragments from the pyramid temple.

L–M/38) Northeast of the king's north chapel, the north (outer) edge of the subfoundation of the stone inner enclosure wall was found in 1993 (pl. 40). Because the section was narrow and the debris high, the entire thickness of the subfoundation could not be exposed. It was covered by masses of large limestone fragments, some with a paneled surface decoration.

F/38) The northwest corner of the subfoundation of the inner enclosure wall was excavated during the 1998 season (fig. 3). Here the subfoundation had unexpected irregularities that may have been caused by an error of the ancient surveyors. Two building phases could be recognized. The subfoundation was originally two courses deep with a surface level 44.82 m above NN. The north end of the 2.59 m wide north-south wall consisted of six rows of regularly placed gray bricks. The north edge of the east-west wall did not reach the north end of the north-south wall, but ended 90 cm south of it. In addition, the east-west wall was only 2.32 m wide and consisted of five rows of bricks.

In the second phase, the west end of the east-west wall was rebuilt at a higher level, its width was increased to 3.24 m, and the alignment was improved. The upper surface of the irregularly set blackish bricks was at a level 45.06 m above NN. Even with these corrections, for unknown reasons the width of the east-west wall still differed from the standard 2.625 m. The debris on top of the subfoundation contained large limestone fragments, but only a few had remains of surface decoration.

In front of the outer corner was a roughly circular pit, 2.6 m deep and about 1.5 m in diameter, with a bottom level 43.08 m above NN. It was filled with clean sand and had remains of bricks or *muna* at the bottom. The date and purpose of the pit are unknown.

E/34) In front of the pyramid entrance we excavated a narrow section of the subfoundation in 1993. It was 2.60 m wide and three courses deep, with an uneven surface located 44.66–44.72 m above NN.

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[39] See Ricke, *BemerkungenAR* I, pp. 54, 68. Similar putlogs and protruding beams in modern brick and pisé architecture in northwest Africa fill structural as well as ornamental needs. Good examples may be found in Norman F. Carver Jr., *North African Villages: Morocco, Algeria, Tunisia* (Kalamazoo, Michigan, 1998), pp. 77–81, 83, 88, 92–95, and Annemarie Fiedermutz-Laun, *Aus Erde geformt: Lehmbauten in West- und Nordafrika* (Mainz, 1990), pls. 19–35, 59–61 between pp. 106–157 and pls. 13–21, 24, 48–49 after p. 171.

[40] The author saw a paneled limestone fragment near the subsidiary pyramid south of the main pyramid (unpublished).

[41] Petrie, *Lahun* II, p. 5, pls. 5A, 6[b], 23, 51[a]. This wall consisted of a natural rock core cased by slabs with vertical grooves. Petrie's reconstruction on plate 23 needs to be adjusted: the rock core of the wall should be covered with another block, and the reconstruction of a parapet wall on top of the wall is rather improbable.

[42] During excavations at the pyramid of Amenemhat III at Dahshur, we did not consider the existence of an inner stone enclosure wall when two paneled stone fragments appeared (Arnold, *Amenemhet III*, p. 67, fig. 34). We had previously found a paneled brick outer wall surrounding the pyramid, and the presence of two such walls seemed unlikely. In retrospect, one wonders whether De Morgan had actually found remains of the inner wall, but considered it to be a retaining wall for the foundation pit of the pyramid (De Morgan, *Dahchour* I, p. 88).

[43] Jéquier, *Deux pyramides*, pp. 7–9, figs. 6–7. His reconstruction of a heavy coping stone bridging the recesses is inspired by the construction of false doors, etc., but seems to be wrong. Representations of paneled walls on the socles of granite sarcophagi clearly show that the tops of such recesses were not covered.

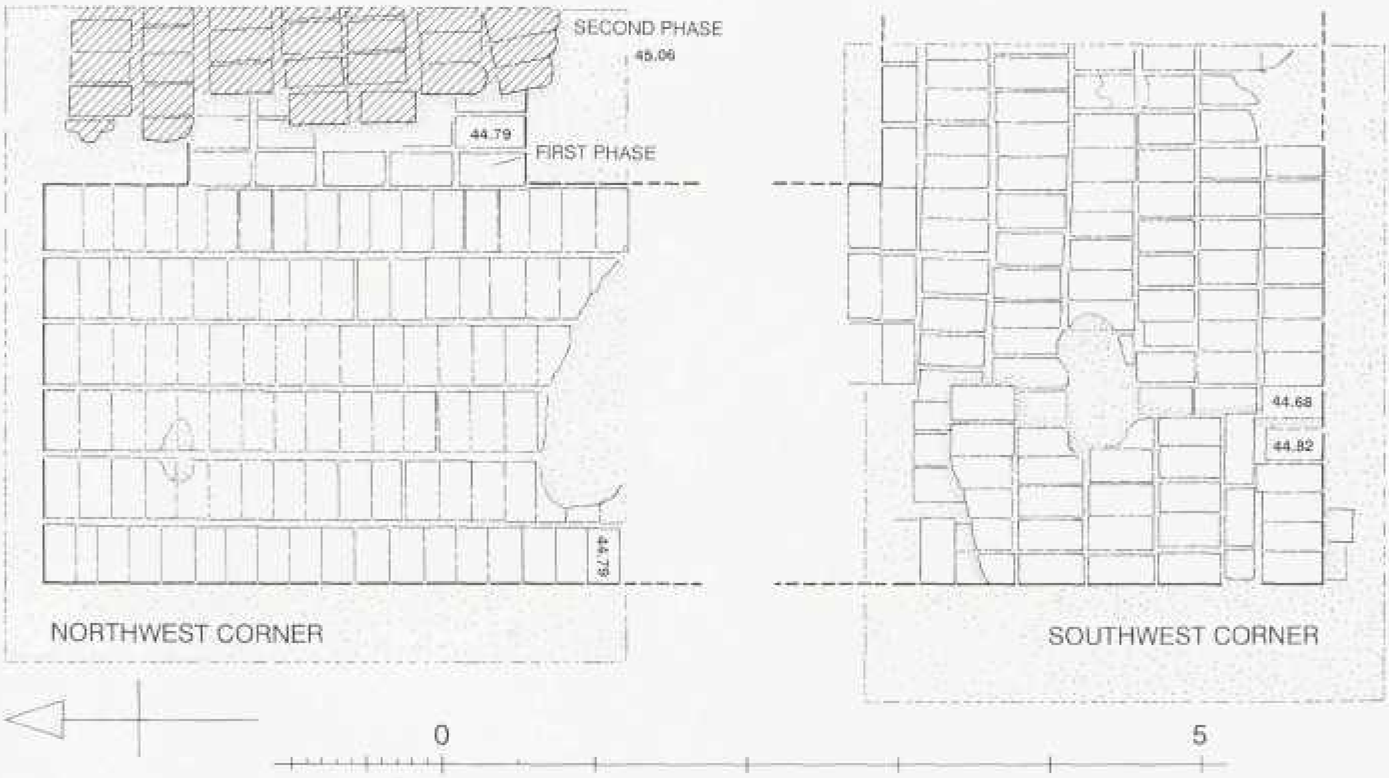

Fig. 3. Plan of the northwest and southwest corners of the subfoundation of the limestone inner enclosure wall. Scale 1:50. Drawing D.A.

E/25) The southwest corner of the subfoundation was excavated in 1998 (fig. 3); it was one to three courses deep, with a surface level 44.68 and 44.82 m above NN. Surprisingly, the east-west branch was not 2.625 m wide, but rather 2.90 m wide. Only a few fragments of the paneled surface decoration were preserved in the debris above the subfoundation.

G/24) During the 1997 and 1998 seasons, a 13 m long section of the subfoundation was cleared 4.12 m north of pyramid 8 (Queen Weret I; pl. 50). The subfoundation was 2.88 m wide, two courses deep and set into a deep foundation trench. The upper surface of the subfoundation was at a level 44.80–44.98 m above NN. Numerous fragments of the stone wall were found in the area.

L/24) In 1995 a small section of the subfoundation was exposed south of the king's pyramid, 4.15 m north of the northeast corner of pyramid 8 (pl. 50). The remains of the subfoundation consisted of about six bricks arranged as headers with the upper surface at a level 44.83 m above NN. Many limestone fragments of the wall with paneled surface decoration were preserved.

R–S/23–24) In 1994 the subfoundation of the southeast corner was excavated about 5 m to the north and west of the wall's outer corner. The level of the brick surface ranged between 44.83 and 44.99 m above NN. The 2.65 m wide subfoundation of the east wall consisted of six rows of bricks, while the subfoundation of the south wall was 2.98 m wide and had seven rows of brick. An eighth brick row had been removed during the construction of the passage connecting the south temple and the inner pyramid court. One has to conclude, therefore, that the foundations of the north and south walls were about 35 cm or one brick wider than the east and west walls.

The Pyramid of Senwosret III

(figs. 4–6; pls. 6–29, 31; plans IIc–d, IV)

Bibliography: *LD*, text vol. 1, p. 205; Vyse, *Gizeh*, vol. 3, pp. 58–62; De Morgan, *Dahchour* I, pp. 47–49, figs. 106–10, pls. 2–5; De Morgan, *Dahchour* II, pp. 87–97, figs. 131–41, pl. 15

The pyramid of Senwosret III as it stands today at Dahshur resembles a steep gray mound with a crater in the center. In 1882–83, Maspéro drove an enormous trench into the center of the pyramid masonry from the north, apparently at the level of the *gebel* surface.[44] This senseless operation not only resulted in substantial damage, but also failed to uncover the pyramid entrance. De Morgan later used this trench to sink a shaft into the center of the pyramid (see below). Owing to rainfall and the general deterioration of the brick structure, the edges of the trench have since collapsed, enlarging the crater in the pyramid's center; with each rainstorm, the pyramid core is subjected to further erosion.

The date of the destruction of the pyramid casing is somewhat problematic. The descriptions of the pyramid by both Vyse and De Morgan, as well as De Morgan's excavation photo and his reconstruction drawings of the pyramid core and casing (fig. 4),[45] seem to suggest that the lower courses and even some corner blocks were still preserved in the late nineteenth century. Vyse reports that "after a few days' labor a con-

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[44] De Morgan, *Dahchour* I, p. 50. Perring's section drawing seems to indicate, however, that he had already started to cut higher up in the core masonry, where two large steps are visible (Vyse, *Gizeh*, pl. between pp. 60 and 61).

[45] De Morgan, *Dahchour* I, pl. XIII (upper, wrongly numbered XII), figs. 108–9.

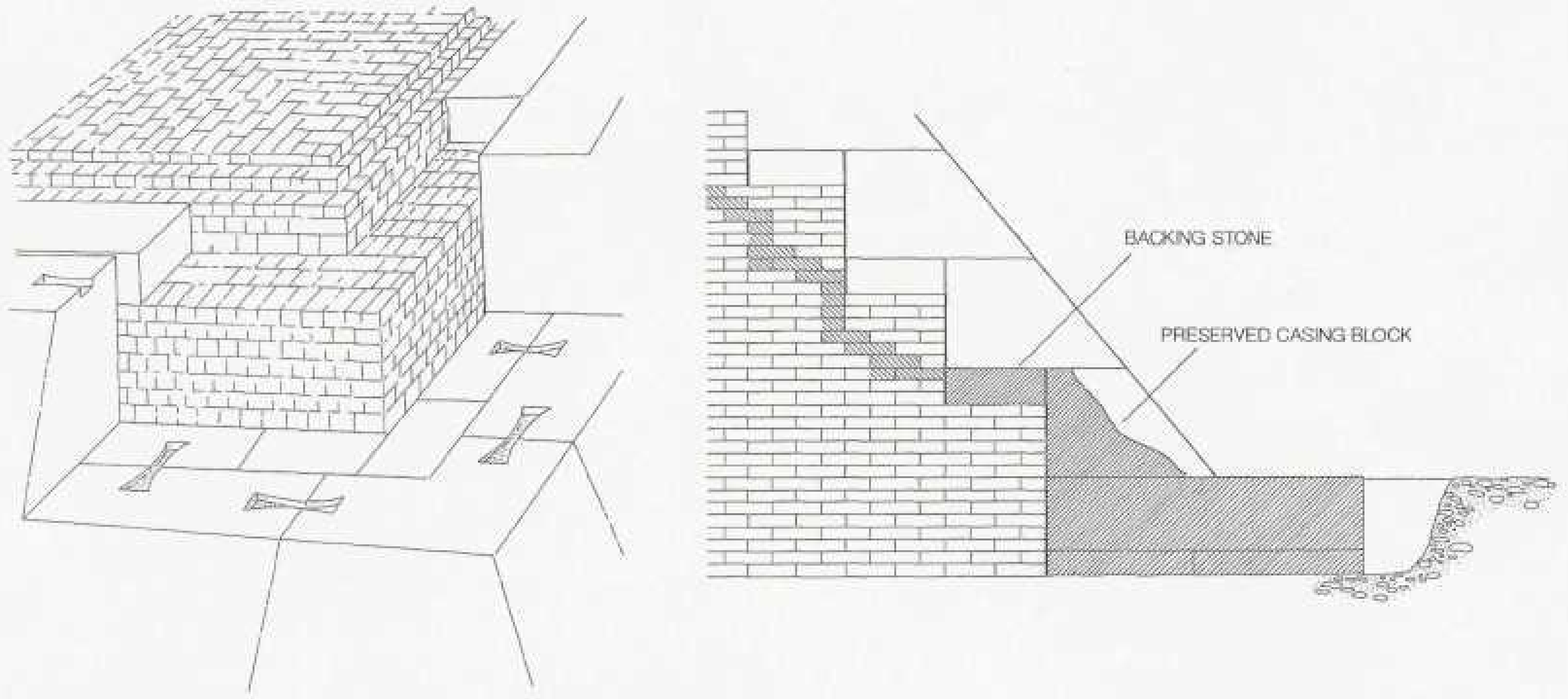

Fig. 4. Reconstructed corner of the pyramid of Senwosret III (left) and section through the pyramid foundations, casing, and brick core (right). Drawing D.A. after De Morgan, *Dahchour* I, figs. 108–9.

siderable quantity of the casing was found, which had been sawn up for removal."[46] We also found layers of limestone dust on top of debris at the southwest corner of the pyramid. The use of saws for the dismantling of the casing is not a pharaonic method, but suggests more recent activity, probably from about 1900.

Our excavation found that the stone foundations at the northwest, southwest, and southeast corners of the pyramid had been completely removed before intrusive ancient tombs were dug in these areas (p. 28). Therefore, Vyse and De Morgan could not have found these corners preserved. In addition, tombs of the Late Period to Christian era were dug into the debris mounds surrounding the pyramid at a level close to that of the modern surface, suggesting that the pyramid site must have been ruined long before the excavations of Vyse and De Morgan.

One can suggest that the destruction of the pyramid started shortly after Prince Khaemwaset's conservation work (pp. 29–30), and that it was likely connected with the systematic dismantling of the rest of the pyramid complex. In 1992, in the debris south of the south temple, we found two limestone blocks that were prepared for reuse. Both carried the identical, well-preserved hieratic inscription in black paint, "The temple [called], 'Ramesses, Mery-Amun, alive, sound, and healthy, lord of the *sed*-festival like Reharakhty.'" The inscriptions reveal that the stones were intended to be reused in a *sed*-festival temple of Ramesses II, perhaps at Memphis, implying that the pyramid complex of Senwosret III was used as a quarry at least in the later part of Ramesses II's reign.

The stratification of the debris around the foot of the pyramid suggests that a second demolition operation took place after the removal of the casing and backing stones. At an unknown later date, still in antiquity, other stone robbers dug a wide trench around the foot of the pyramid in order to recover the foundation blocks that had been left under the debris after the first phase of destruction.[47]

Perring and Vyse reported the seemingly precise measurement of 51°20'25" for the pyramid's inclination. From the casing blocks De Morgan claims to have found in position, he calculated that the pyramid had an inclination of 56°. However, our measurements of numerous pieces of casing blocks, which were collected on all sides of the pyramid, show that the inclination was about 50°. The satellite pyramid of the Bent Pyramid and the pyramid of Sahure have similar inclinations, and both were apparently planned using a ratio of 6:5 between the height and the length of the half base, which would result in an inclination of 50°11'40".[48] There is little explanation for the different measurements published by our experienced predecessors.[49]

By measuring the west and south sides of the pyramid, De Morgan established the following base dimensions:[50]

Brick core	100.80 m
Stone casing	104.90 m
Foundation	108.70 m

According to these measurements, the stone casing was 2.05 m thick and the foundation 3.95 m wide. De Morgan's measurement of 104.90 m and Perring's older measurement of 106.64 m for the pyramid's base length[51] are so close to 200 cubits, which equals 105 m, that one would expect that this was the intended dimension.

In order to check these measurements we excavated the northwest, southwest, and southeast corners of the pyramid, but did not find casing blocks, corner blocks, or any of the

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[46] Vyse, *Gizeh*, pp. 58–59; De Morgan, *Dahchour* I, p. 47, figs. 108–9.

[47] Evidence for the same sequence of events was found at the pyramid of Amenemhat I at Lisht.

[48] Jean-Philippe Lauer, *Le mystère des pyramides* (Paris, 1974), pp. 301–10, 342–43.

[49] Since De Morgan's drawing (*Dahchour* I, fig. 109) shows an inclination of exactly 50°, one might assume that he mistook 50 for 56 in his notebook and made his calculations based on this error!

[50] De Morgan, *Dahchour* I, p. 47.

[51] Vyse, *Gizeh*, p. 63.

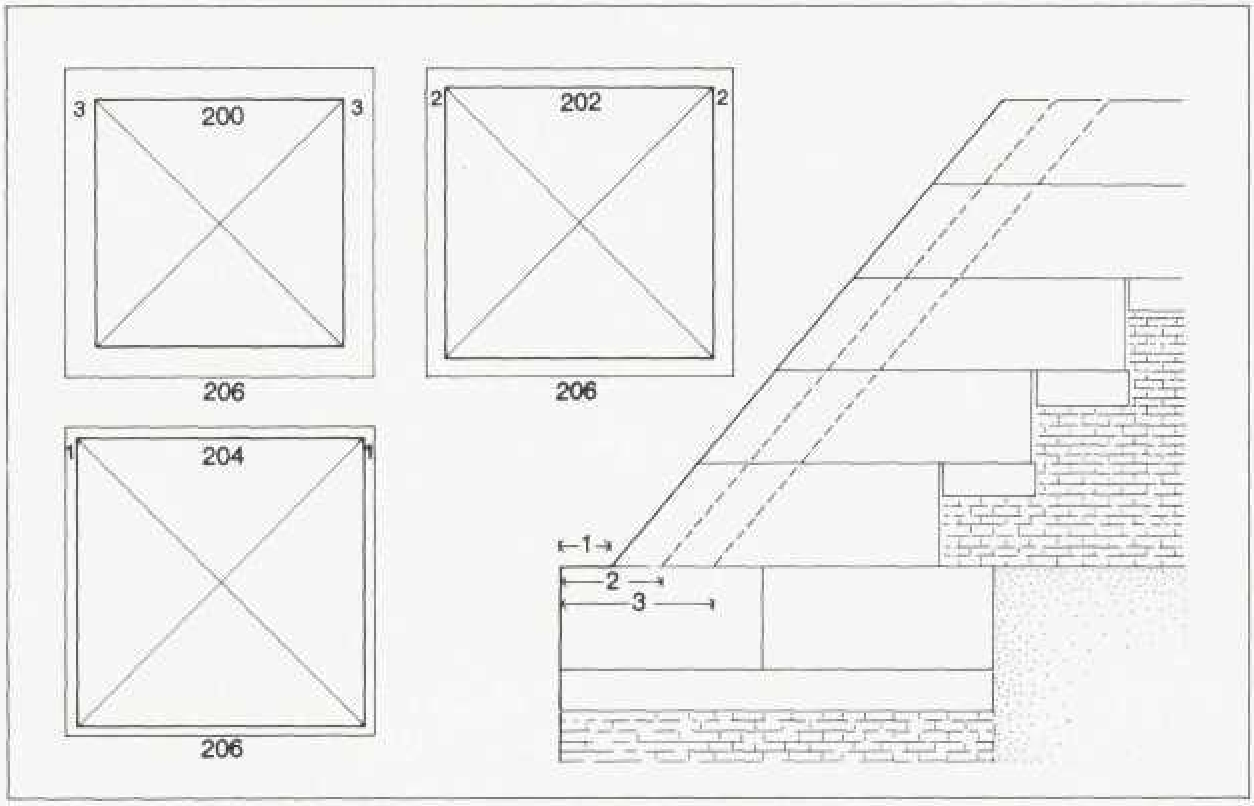

Fig. 5. Pyramids with the alternative base lengths of 200, 202, and 204 cubits on a given foundation platform of 206 cubits. Drawing D.A.

corner foundation blocks; only the brick subfoundation remained. In addition, since we did not find either any traces of De Morgan's excavation or any evidence that the pyramid corners were better preserved in 1894, we have to assume that De Morgan's "direct measurements" were only calculations based on the alignment of preserved parts of casing on the west and south sides of the pyramid. Having surveyed three corners of the subfoundation, we calculated that the subfoundation measured 108.20 m, which is quite close to De Morgan's estimate and corresponds to 206 cubits (exactly 108.15 m).

If the base of the pyramid itself was only 200 cubits, the subfoundation and stone foundation would have extended 3 cubits beyond the pyramid base on all four sides. Since this protrusion is unusually wide, one might consider the possibility that the pyramid base was 204 cubits long (107.10 m), reducing the extension of the foundation to 1 cubit on each side. The total loss of the pyramid casing prevents the verification of this alternative.

The calculations of the pyramid height by Perring and Vyse (65.66 m) and De Morgan (77.76 m) were based on their erroneous measurements of the inclination (respectively 51°20'25" and 56°) and have to be reduced accordingly.[52] An inclination of 50° and a base length of 200 cubits would produce a height of 62.567 m, while a base length of 204 cubits would increase the height to 64.131 m.

Some casing blocks, as well as other fragments, bear huge, roughly painted, red quarry or masons' marks and more carefully written black control notes, which are similar to the inscriptions that provided important information about the construction of the pyramid of Senwosret I.[53] This material still awaits careful study, and it is hoped that it will provide insights into the organization of labor and the chronology of the reign of Senwosret III.[54]

THE FOUNDATIONS

(fig. 5; pls. 8–10a, c–d, 31; plans IIc–d, IV)

The brick core of the pyramid sits on a 25–30 cm high *gebel* platform consisting of pebbles and sand (fig. 5). In some areas there may have been surface depressions that were filled with sand.[55] The shallow platform was surrounded by a trench 0.5–1.0 m deep and 4.50–4.90 m wide that was filled with four courses of bricks that supported the actual stone foundation. We excavated the upper course of the bricks at the northwest, southwest, and southeast corners and along the southern half of the east side; the level varied slightly between 44.28 and 44.35 m above NN.

In 1837, Vyse still saw on all sides of the pyramid "a stone [foundation] platform, 14 feet 6 inches wide, and 2 feet 9 inches thick." His measurements, which equal a width of 4.42 m and a height of 84 cm, seem to be fairly accurate. We measured a width of 4.40–4.50 m and observed the lower of originally two to three courses of limestone foundation blocks, each about 50 cm high. The courses consisted of two rows of blocks that were arranged as headers around the brick core. The remaining blocks were found near the northwest and southeast corners and along the southern half of the east side. The lower course of blocks was laid against the inner edge of the foundation trench and carried the now-missing middle course of the stone foundation, the position of which was indicated by sockets, scratched setting lines, and mortar on the top surface of the lower course. The upper blocks were also arranged in two rows of headers, and the blocks of the front row were laid on top of the joints of the course below. One block of the upper course is partially preserved west of the pyramid temple. Its upper surface is 45.85 m above NN and seems to indicate the level of the foot of the pyramid.

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[52] Vyse, *Gizeh*, p. 63.

[53] F. Arnold, *Control Notes.*

[54] Wegner found several control notes in the builders' debris of the valley temple of Senwosret III at Abydos, see Josef W. Wegner, "The Nature and Chronology of the Senwosret III–Amenemhat III Regnal Succession: Some Considerations Based on New Evidence from the Mortuary Temple of Senwosret III at Abydos," *JNES* 55 (1996): pp. 249–79, and Felix Arnold, "New Evidence for the Length of the Reign of Senwosret III?" *GM* 129 (1992): pp. 27–31.

[55] We could see the underside of the brick pyramid core through a breach in De Morgan's staircase west of the royal crypt (see here p. 39, n. 112). The bricks sit on top of a sand layer approximately 2 m thick.

The front row of the foundation blocks would have protruded beneath the pyramid casing. A shallow bed was probably chiseled into the top surface of the upper foundation course in order to prevent the casing blocks from being pushed outward by the enormous weight of the pyramid.

Pyramid Southeast Corner (Squares Q/25–29)

(pls. 9, 10c–d)

Excavation work in 1990, 1995, 1999, and 2000 showed that the brick subfoundation is completely preserved at the southeast corner and along the south half of the east side of the pyramid. Ten-and-one-half rows of bricks were laid into a foundation trench 1 m deep and 4.50 m wide; their top surface was 44.21–44.44 m above NN.

The subfoundation consisted of four regularly arranged courses of bricks laid in sand without mortar; the bricks measured between 11 x 19 x 39.5 cm and 11.5 x 19.5 x 40.5 cm. Those in the upper course were arranged as headers in relation to the pyramid center. The plan on plate 9 illustrates how two groups of bricklayers, one working from the east and the other from the south, met at the pyramid corner. The brick subfoundation carried the lowest of three foundation courses, which consisted of carefully dressed but irregularly shaped limestone blocks. Some blocks from the inner row were preserved along the east end of the south side and along the east side of the pyramid. The varying thicknesses of the blocks (50–76 cm) resulted in an uneven surface that had to be regularized in the foundation course, which would need to be precisely leveled in order to carry the casing.[56] Behind the casing, the *gebel* rose to a level 20–30 cm higher than the desert surface surrounding the pyramid, forming a shallow platform that carried the pyramid's brick core; portions of platform and core were observed along the south side and mainly along the south half of the east side.

During the 1996 season we searched unsuccessfully for a foundation deposit at the southeast corner. Three small pits were opened in the subfoundation along the southeast diagonal: one behind the outer corner, one inside the inner corner, and one between them. Each was sunk 1.2–1.4 m into the sand-and-pebble strata of the desert surface. Nothing in the natural sand-and-pebble layer indicated any previous digging or the presence of a deposit. To ascertain that we did not miss any irregularity between the three pits, we dug small tunnels from the pits along the diagonal, but found nothing. The foundation deposit apparently was located in a different spot. Since most Twelfth Dynasty pyramids had foundation deposits,[57] one would also expect them under the pyramid of Senwosret III.

Pyramid Northwest Corner (Square F/38)

(pls. 8, upper, 10a)

During the 1993 season we opened a deep trench in the area of the pyramid's northwest corner. At the level 44.26 m above NN the pyramid's brick subfoundation appeared, laid in a 0.84–1.14 m deep trench dug into the *gebel*. Because of the height of the surrounding debris, the bottom of our trench did not encompass the full width of the subfoundation, which probably had the same 4.50–4.90 m width as the other excavated corners. The subfoundation was also somewhat obscured by two post–New Kingdom burials (one in a pottery coffin and the other under a gablelike brick construction) that were not removed. However, on the pyramid's north face we found still in position the westernmost block of the inner row of the lower foundation course; the block is 55 cm high. A fruitless attempt to uncover a foundation deposit about 0.55–1.5 m southeast of the outer corner revealed that the subfoundation in this area is also four courses deep (54 cm).

Pyramid Southwest Corner (Square E/25)

(pl. 8, lower)

During the 1993 season, the removal of huge debris mounds revealed the brick subfoundation of the pyramid's southwest corner at a level 44.30 m above NN. Here the trench for the subfoundation is 4.90 m wide and 1.00–1.10 m deep. The brick subfoundation itself consisted of four courses, 55 cm deep, laid in eleven rows, for a total width of 4.6 m. All stone foundation blocks had been removed in ancient times, since two post–New Kingdom burials (in a wood coffin and in a pottery coffin) were dug into the limestone debris above the brick subfoundation. The condition of this area, which does not seem to have been disturbed in modern times, and the stratification of the debris suggest that De Morgan could not have excavated here.[58]

THE BRICK CORE

(fig. 4)

The pyramid core was built entirely of large, gray bricks measuring between 12.8 x 20 x 38 cm and 14.2 x 23.0 x 43 cm. Vyse observed four different finger imprints on the bricks, and De Morgan collected twenty more types.[59] The bricks contained large quantities of Old Kingdom potsherds, which were used to improve temper, suggesting that there was an extensive Old Kingdom dump or ruin near the brick production area. Since the builders certainly would have manufactured the bricks as close to the construction site as possible, the source of the potsherds may have been a settlement near the lower end of the causeway of Snefru's north pyramid, perhaps Snefru's pyramid town itself. As is usual in Egyptian construction, the bricks were laid as headers from all four sides of the pyramid. They were not set in mortar, but separated by layers of clean desert sand 2–3 cm thick, with narrow vertical joints. The brick core was apparently set in small steps in order to accommodate the casing and backing stones.

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[56] The base would have been 37 cm above the court level of 45.50 m above NN.

[57] A. C. Mace, "Excavations at Lisht," *BMMA* 16, pt. II (Nov. 1921): pp. 16–17; Arnold, *Senwosret I*, vol. 1, pp. 87–91; Petrie, *Lahun* II, p. 4; Arnold, *Amenemhet III*, pp. 16–17. Foundation deposits were not searched for in the pyramids of Amenemhat II and Amenemhat III at Hawara.

[58] De Morgan's plan (*Dahchour* I, fig. 105) suggests that he excavated only the brick core.

[59] Vyse, *Gizeh*, p. 62; De Morgan, *Dahchour* I, fig. 110.

THE CASING

(figs. 4–6a; plans IIc–d, IV)

The casing of the pyramid consisted of very large blocks of fine Tura limestone, one of which has remained in position. Chips and larger pieces of this beautiful material still surround the pyramid mound in meter-thick layers. The dimensions of the brick subfoundation, which has an average width of 4.5 m (see above), suggest that the casing was over 4 m thick, allowing the base to protrude 1 to 3 cubits in front of the pyramid.

Vyse mentions large casing blocks, one of which measured 0.59 x 1.83 x 2.51 m.[60] We measured a block that was 1.68 m wide, 1.04 m high, and 0.65 + x m deep, with a lever socket on the side.[61] Another fragment belonged to a block that was 89 cm high and had two parallel sockets for dovetail cramps.[62] We reconstructed the dimensions of a damaged casing block as 2.85 m wide, 46 cm high, and 1.82 cm deep. All casing blocks seem to have been connected by wood cramps.

The surface of the casing was sprinkled with the 5 x 10–35 cm wide limestone patches that are usually found in pyramids.[63] Most of the patches were concentrated along the lower edges of the casing blocks, which were presumably damaged when portions of the pyramid masonry sagged. A trapezoid-shaped cross-section and gypsum mortar helped to keep the patch stones in place.

Patch stone holes had been observed by Vyse, who mistakenly believed that "Putlock [putlog] holes had been cut into many of the blocks to receive the ends of the poles, upon which a scaffold had been placed, that the workmen might be enabled to finish, trim off the casing to an even surface."[64] We did not find any traces of sockets that could have been used for inserting a beam.

De Morgan's drawings (fig. 4) and our own observations at the south end of the east side of the pyramid have enabled us to understand the structure of the casing.[65] Two to three courses of foundation blocks were arranged as headers in the foundation trench. The backs of these blocks were pushed against the *gebel*, which was partially held in place by brick retaining walls. The foundation platform carried the casing blocks and the four to six courses of bricks that supported the backing stones. The inner faces of these 20–30 cm thick limestone slabs adjoined the steps of the brick core and helped to equally distribute the weight of the heavy casing blocks over the fragile brickwork. The current excavation has uncovered remains of several backing stones in position, all of them a few meters from the northwest and southwest corners of the pyramid temple. Originally they sat behind the first three courses of the casing blocks (plan IV, right section). Their arrangement shows that the lowest course of casing blocks was 1.13 m high, followed by courses of 91, 83, and 84 cm. Because of the technical difficulties involved in lifting heavy stones, the height of the courses generally decreases farther up.[66]

THE INSCRIPTION OF PRINCE KHAEMWASET

By Adela Oppenheim and James P. Allen

(pls. 6–7)

In 1994, in the debris on the pyramid slope above the shaft of Queen Weret II (pyramid 9; square I/25), we found eight fragments of pyramid casing blocks that were inscribed with large, roughly hewn, sunken hieroglyphs. A ninth fragment was excavated in 1995 in the area east of the southeast corner of the king's pyramid. The preserved signs leave no doubt that they are remains of two or possibly three restoration texts commemorating the activities of the "archaeologist" and son of Ramesses II, Prince Khaemwaset. Similar inscriptions are known from Old Kingdom pyramids at Giza, Abusir, and Saqqara,[67] but this is the first evidence for Khaemwaset's activities both at Dahshur and at a Middle Kingdom pyramid. The inscriptions confirm that at least sections of the pyramid casing remained intact during the first half of the reign of Ramesses II. At that time the pyramid complex was apparently not used as an official quarry but, on the contrary, was protected by the prince.

The hieroglyphs are rendered in a cursory fashion using basic geometric shapes and omitting internal details. Chisel marks remain prominent, though when the inscription was in its original position high up on the south side of the pyramid, these marks would have been less noticeable. The hieroglyphs are fairly deeply sunken, with deeper broad areas and shallower narrow forms. The edges of the hieroglyphs are not perpendicular to the surface of the casing, but slope inward, so that the outer contours of the forms are wider than the inner ones. Broader areas are covered with wide chisel marks, while narrow forms are V-shaped in section and were rendered with finer chisels. A golden patina and extensive crackling are found on the surface of the casing blocks, the result of centuries of exposure to the elements before the addition of the Ramesside inscription. As would be expected, the sunken surfaces of the hieroglyphs have a lighter patina, an indication that the inscription remained exposed and intact long enough for at least some weathering to have occurred. The texts seem to follow the basic pattern of other inscriptions attributed to Khaemwaset: the titulary of Ramesses II and probably also that of Senwosret III are vertically oriented, while the actual text is arranged in horizontal rows that read from right to left.

1. Top of a vertically oriented cartouche of Ramesses II (95.51). To the left is the seated falcon deity Re with a sun disk on his head and an ☥ balanced on his knee; a narrow raised space separates the sun disk from the head. The back and bot-

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[60] Vyse, *Gizeh*, p. 61. His statement that the blocks were not laid in regular, equally thick courses, but that each stone was fitted to those adjoining it, cannot be accurate. Instead, one must assume that the height of the courses gradually diminished upward. Furthermore, all fragments of casing blocks observed by us are rectangular and have vertical side faces.

[61] Similar to Arnold, *Amenemhet III*, p. 81, fig. 39. See also Arnold, *Building*, pp. 165–66, fig. 496; Dieter Arnold, "Manoeuvering Casing Blocks of Pyramids," in *Pyramid Studies and Other Essays Presented to I.E.S. Edwards* (London, 1988), pp. 54–56.

[62] Two parallel cramps rarely occur in earlier buildings, but are more common in Ptolemaic and Roman period walls, see Arnold, *Building*, p. 127, figs. 4.31, 4.85. During the 2000 season we found several complete wood cramps in the debris of the pyramid slope above the pyramid temple. The cramps are uninscribed.

[63] Examples are in Arnold, *Senwosret I*, vol. 1, pls. 40–41, 93.

[64] Vyse, *Gizeh*, p. 61.

[65] De Morgan, *Dahchour* I, figs. 108, 109 (reproduced here as fig. 4), and to some degree his photo on pl. XIII (upper, wrongly numbered XII). De Morgan's drawing was used to create a model of a corner of Senwosret III's pyramid, which is on display in the Field Museum of Natural History, Chicago.

[66] See the list of heights of pyramid casing blocks in Arnold, *Building*, p. 167.

[67] Inscriptions of Khaemwaset have been found at the pyramids of Djoser, Mycerinus, Userkaf, Sahure, Unas, at the Mastabat el-Fara'ûn of Shepseskaf, and at the sun temple of Niuserre at Abu Ghurob; see Farouk Gomaà, *Chaemwese Sohn Ramses' II. und Hoherpriester von Memphis*, Ägyptologische Abhandlungen, vol. 27 (Wiesbaden, 1973), pp. 61–66.

tom of the deity are broken away along with part of the disk. To the right, facing the falcon, is the roughly rectangular head, crown, and *was*-scepter of a hieroglyph. At right and left are traces of the edges of the cartouche.
Dimensions: H. 11.9 cm; W. 16.1 cm

2. Bottom of a vertically oriented cartouche of Ramesses II (94.330/5). At the far left is a small piece of the curving right side of a *ms*-sign. In the center is an , broken at the top and bottom. A sign, also chipped at the top and bottom, is to the right. At the far right is a curving piece of the bottom of the cartouche.

This fragment and the one described above both belong to a variation of the nomen of Ramesses II.[68] The use of the sign indicates that the inscription dates sometime after the king's 18th regnal year.[69]
Dimensions: H. 8.1 cm; W. 11.7 cm

3. Remains of /// , and an unidentified sign (94.330/1). The fragment includes parts of three horizontally oriented hieroglyphs; below the text there is a large area with the original surface of the pyramid casing, and to the left, the ancient edge of the block is preserved. To the right is the curving back and tail of an , followed by the bottom of a with a wide base and narrower sides. At the far left is the bottom and right side of a vertically oriented hieroglyph.
Dimensions: H. 24.2 cm; W. 41.4 cm

4. End of the name of Khaemwaset and (94.330/6). The lower left corner of a sign remains in the upper right of the fragment. To the left is an , broken at the top and bottom. In the upper left is the bottom right corner of a sign, and below it the diagonal edge of an . At the bottom is the right side of a narrow sign.
Dimensions: H. 14.2 cm; W. 21.9 cm

5. Part of a horizontal Khakaure cartouche, ; end of the name of Khaemwaset. Two pieces joined together (94.330/3). The fragments preserve parts of two horizontal rows of text. The upper row has the end of a horizontally oriented Khakaure cartouche that includes parts of all three signs and the lower left corner of the sign. A deep vertical chisel mark made during the destruction of the pyramid casing damaged most of the two inner signs. To the left of the cartouche is an broken at the top, followed by an that is broken at the top, bottom, and along the left side. The lower row contains part of the name of Khaemwaset. At the right is the curving top of the sign, followed by most of a . To the left is the top of a vertically oriented stroke.
Dimensions: H. 24.4 cm; W. 44.7 cm

6. Remains of /// (94.330/2). Part of one horizontal line of text is preserved with an uninscribed area above. At the far right is most of the body, upper legs, and top of the tail of an . To the left is the angular left side of a sign, with the horns of the below. To the left is a , broken at the lower left, followed by most of an , with the diamond-shaped tip of an sign below.

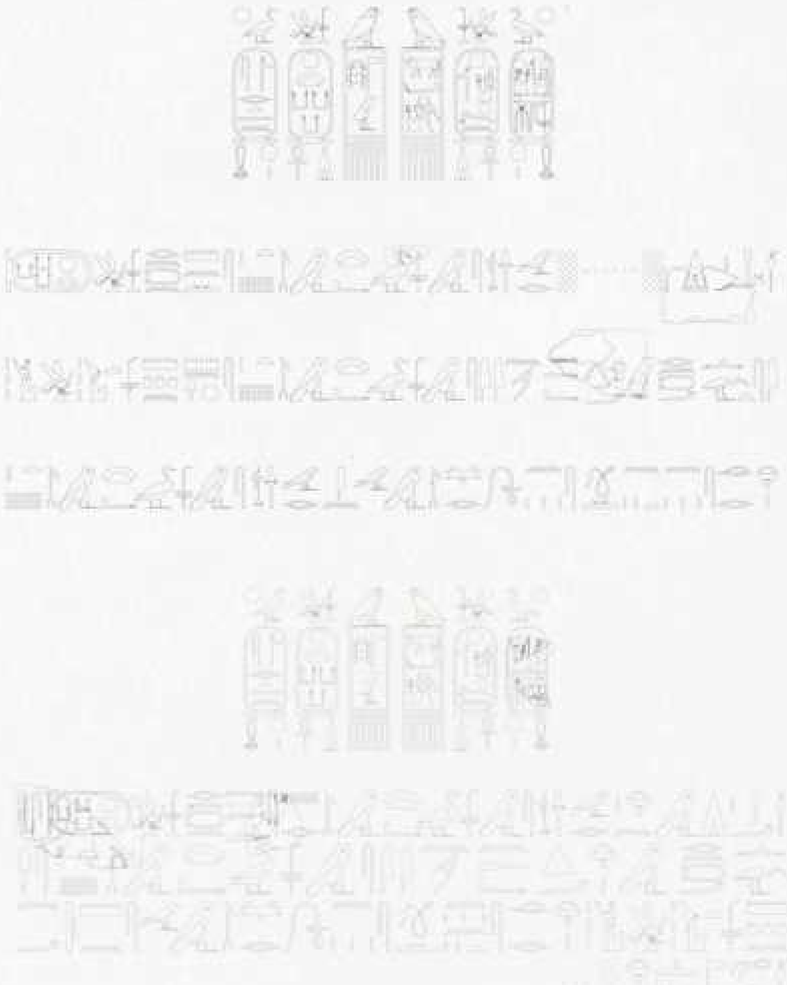
The right side of the fragment has a large section that was clearly broken during or after the destruction of the pyramid casing, since parts of two hieroglyphs were damaged. Above the and signs, a thin outer layer of the casing's surface has sheared away, perhaps the result of weathering that occurred when the block was still in position. The ancient right edge of the block is preserved.
Dimensions: H. 28.7 cm; W. 43.9 cm

7. Top of a vertically oriented cartouche of Ramesses II with and and two other signs above (94.330/7). The lower right section of the fragment is filled with the top of the prenomen of Ramesses II facing left; not enough is preserved to determine which variant was used. Most of the sign is intact and below it is the rounded top of the sign; to the left of the is a small piece of the contour line that presumably belongs to a . The curving top and the upper right side of the cartouche are preserved. In the upper right is the somewhat chipped left side of an . Above the cartouche is the bottom of a vertical sign that must be the , and below it is most of a . At the upper left edge is a piece of a horizontal contour. To the right of the cartouche is the edge of a contour line on a diagonal from lower left to upper right.

The fragment does not appear to fit either of the two inscriptions to which the other pieces seem to belong.
Dimensions: H. 18.9 cm; W. 31.0 cm

8. Remains of a and a (94.330/4). At the right is a piece of the curving top of a sign. To the right is the head and neck of a . The head is rendered as a semicircle, the beak angles downward and has a pointed tip, and the neck curves gracefully to the lower right.
Dimensions: H. 7.6 cm; W. 17.1 cm

James P. Allen examined the fragments and suggests the following reconstruction of the text panels:



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[68] Jürgen von Beckerath, *Handbuch der ägyptischen Königsnamen*, Münchner Ägyptologische Studien, vol. 20 (Munich, 1984), pp. 90, 238 no. E10.

[69] Anthony J. Spalinger, "Historical Observations on the Military Reliefs of Abu Simbel and Other Ramesside Temples in Nubia," *JEA* 66 (1980): pp. 94–97.

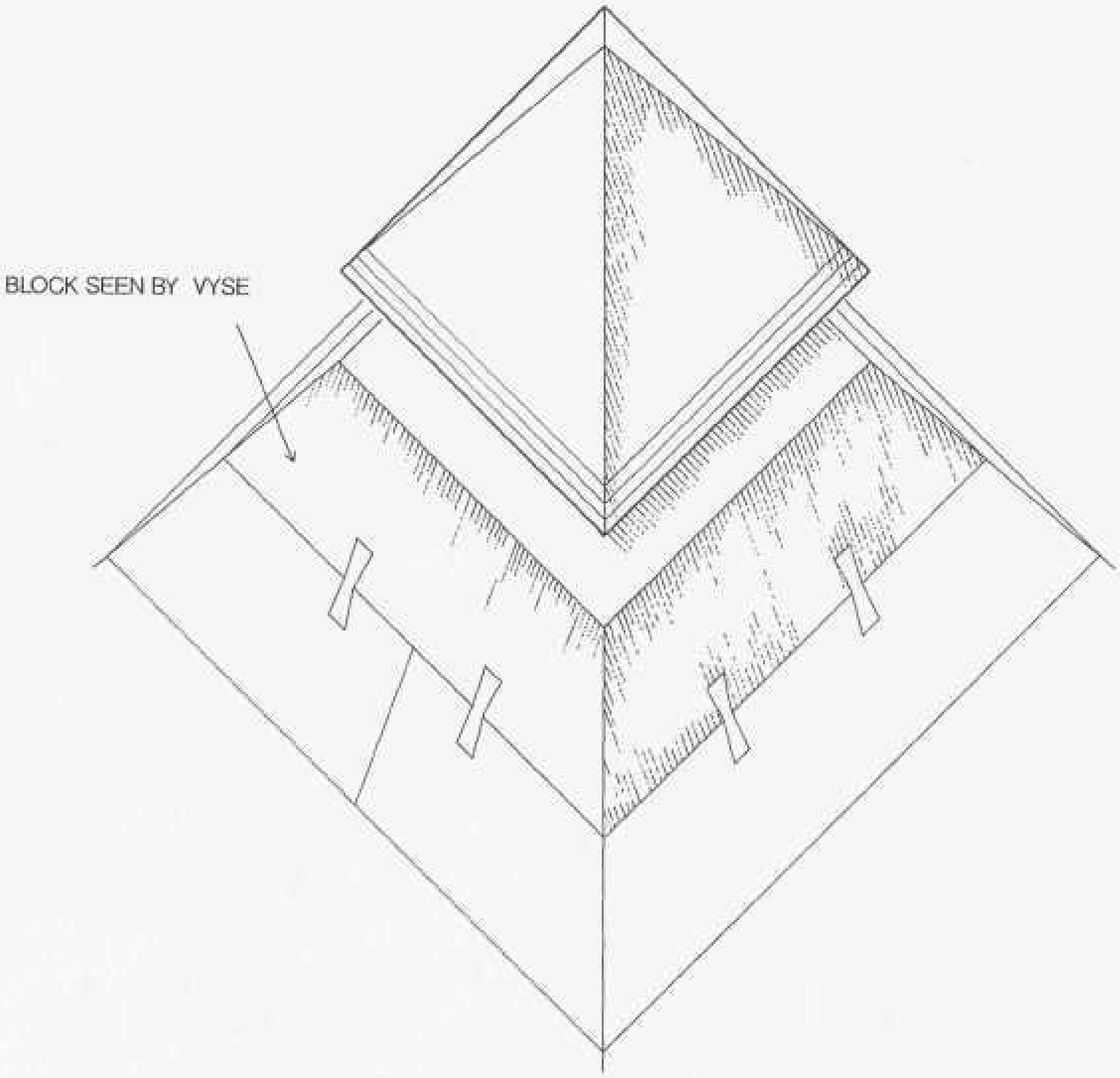

Fig. 6a. Reconstruction of the pyramidion and its base blocks at the top of the pyramid of Senwosret III according to Vyse's description. Drawing D.A.

THE PYRAMIDION

(figs. 6a–b; pl. 10b)

Vyse discovered the square limestone base of the capstone, that is, the block below the pyramidion that formed the next-to-last course of the pyramid casing (fig. 6a). He noted, "The base of the single stone, which formed the apex of the pyramid, was about 6 feet 8 inches [2.03 m] square. It had been fixed upon the course below it (composed only of two blocks) by two of the above-mentioned cramps on each of the four sides. The cramps had been laid in cement composed of plaster of Paris. They were probably formed of wood or of stone, but none were discovered."[70]

Vyse described the pyramidion's base length as 2.03 m; using this measurement and the 50° angle of the pyramid, the height of the pyramidion can be calculated as 1.20 m.[71] Vyse's statement that eight cramps were used to attach the base to the two blocks beneath it is difficult to visualize without an explanatory sketch. Since he describes cramps, instead of vertical pegs on the underside of the block, we must assume the quite unusual arrangement of cramps sunk into the outer surface. Is it possible that Vyse mistook patch stone holes for cramp holes? One would also expect that the upper surface of the base block had a shallow socket and that a corresponding ledge was on the underside of the pyramidion. Perhaps Vyse overlooked this feature.

During the 1995 season we found a pocket of debris containing hundreds of small fragments of bluish black diorite, amounting to about half a cubic meter of material; it is quite certain that these pieces belonged to the pyramidion.[72] The fragments were excavated on the south side of the king's pyramid, 10–11 m north-northeast of pyramid 8 (squares L–M/24–25). The fragments were contained in a layer of sand 50 cm thick that lay slightly above the level of the ancient court. Most were found close together, others at some distance, and still more were picked up as they fell out of the slowly collapsing balk of our trench. The nature of the find suggests that the pyramidion toppled down the center of the south side of the pyramid. Its fall must have occurred early in the destruction process, before any other debris had accumulated at the foot of the pyramid, and therefore before the organized quarrying of the later New Kingdom.

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[70] Vyse, *Gizeh*, pp. 61–62.

[71] The pyramidia of Snefru, Amenemhat III (Dahshur), Khendjer, and an anonymous ruler at Saqqara measure 1.00 m, 1.31 m, 1.30 m, and 1.21 m, respectively. For pyramidia dimensions and further references see Arnold, *Amenemhet III*, p. 15.

[72] Pyramidia have been recovered from the Middle Kingdom complexes of Senwosret II (fragments), Amenemhat III (Egyptian Museum, Cairo JdE 35133/35745), Khendjer (Egyptian Museum, Cairo JdE 53045), two of an unknown ruler of the Thirteenth Dynasty (Egyptian Museum, Cairo JdE 54855–56), and one of King *Jj Mr-nfr-Re* (Egyptian Museum, Cairo JdE 43267), see Arnold, *Amenemhet III*, p. 15. The pyramidia of Amenemhat I, Senwosret I, and Amenemhat II have not been recovered.

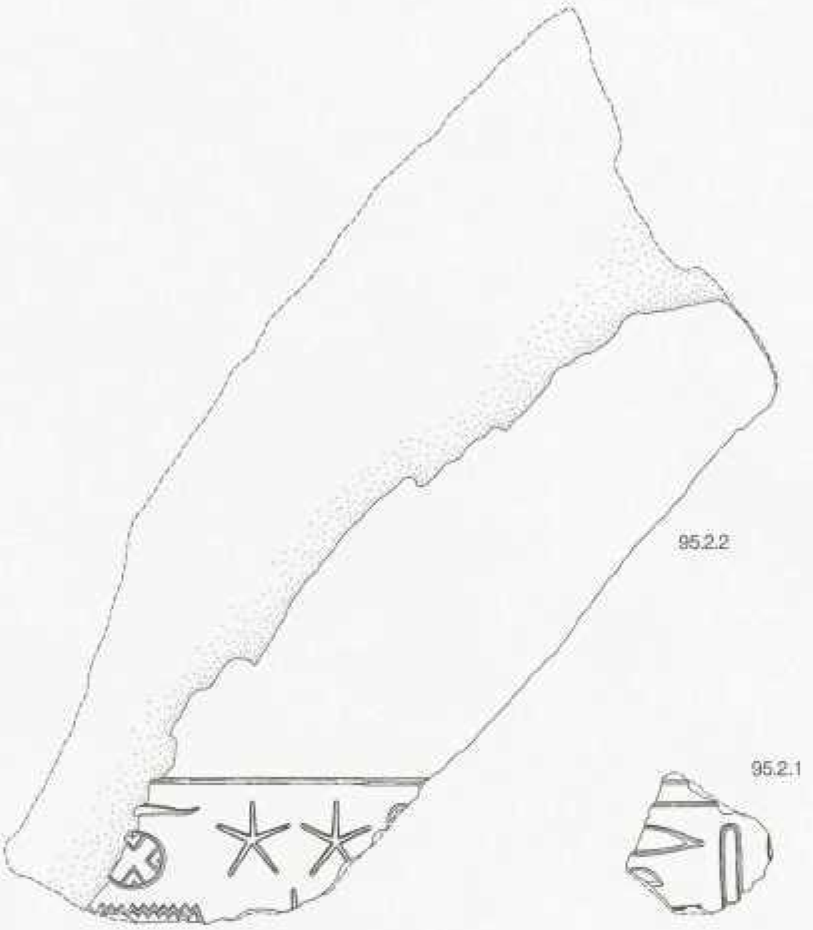

Fig. 6b. Two inscribed fragments of the diorite pyramidion. Scale 1:3. Drawings B.G.

The diorite is fine-grained,[73] and the workmanship is superb. Some fragments have one highly polished surface, while a few have two polished surfaces at an angle of 66° to each other, suggesting that they come from the corner. Only two fragments bear remains of beautifully cut, incised inscriptions (95.2.1, 95.2.2; fig. 6b), which certainly originate from the two registers of text that would have been on the lower edges of all four sides. The inscriptions read from right to left, which is unusual according to James Allen. The text on the larger fragment (25.2 x 26.9 cm) reads "... *[khaba]ues, Meh-[net]* ...," a spell that belongs on the north side of the pyramidion.[74] To the right is the contour of an 𓇋. The smaller fragment (5.3 x 5.7 cm) preserves only the hieroglyphs 𓇋, 𓂋, 𓏏, and —+— at the right edge, and traces of the 𓄊 from the Senwosret cartouche. There are traces of the signs in the upper register. Some of the hieroglyphs contain remains of green paint. The two text fragments do not exactly correspond to the better-preserved inscriptions on the pyramidia of Amenemhat III[75] and Khendjer,[76] though the appearance of the word "star" clearly suggests a text similar to these inscriptions. Some fragments were blackened by fire, which was probably used by the stone robbers to break up the hard, dense diorite.

The Subterranean Apartments of the King

(figs. 7–8, 10–12; pls. 11–29)

Bibliography: G. Daressy, "Fouilles à Dahchour, 1894–1895," *BIE*, 3rd. ser., no. 6, year 1895 (Cairo, 1896): pp. 123–25; Jacques De Morgan, "The Dahshur Explorations," *Harper's New Monthly Magazine* 92 (May 1896): pp. 918–20; idem, *Dahchour* II, pp. 87–97; Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1990–1991," *Orientalia* 61 (1992): p. 251, fig. 32

The history of De Morgan's exploration of the pyramid's interior is fascinating to read and was an unprecedented achievement in excavation, or perhaps one should say in mining (fig. 7). His predecessors, Perring and Maspéro, had tried in vain to open the pyramid from the north side, and Maspéro's search even left a huge crater in the center of the north side. De Morgan began his attempts in February 1894, using this crater to sink a 10 m deep shaft into the *gebel* below the pyramid center, but he failed to find a chamber.

On April 9, at the end of the first season, with most of his workmen occupied at the pyramid of Amenemhat III, De Morgan ordered Reis Abu Hagazi to make a second attempt. Still assuming that the royal crypt lay in the center of the pyramid, but at a deeper level, De Morgan started a tunnel from the southwest corner of the bottom of the queens' (northeast) shaft, in the direction of the center of the pyramid. After digging horizontally for a distance of 50 m, his workmen turned slightly to the left in order to sink their tunnel an additional 3 m. After tunneling horizontally for another 45 m, De Morgan reached the center of the pyramid, which he probed with three trial passages on different levels. The elusive crypt remained hidden. After digging tunnels that totaled 140 m in length, the energy of the excavators faded in the summer heat, and they stopped their project on June 15, 1894.

On November 15 they returned for a third try with renewed energy. Having exhausted the possibilities at the center of the pyramid, De Morgan planned to extend his search to the west triangle, that is, the area between the northwest and southwest diagonals. He first used timbers to reinforce some dangerous parts of his old tunnel and then commenced cutting a new branch slightly further to the west. On November 23, 1894, after only a week of work, an ancient passage was located beneath the floor of the new tunnel, which led De Morgan directly to the burial chambers and the royal sarcophagus (fig. 7). De Morgan calculated that the exact location of the sarcophagus was 26.5 m west and 9 m north of the pyramid center, and he was thus able to find the tomb's original entrance, a small shaft located 35 m south of the northwest corner of the pyramid and 6 m in front of its casing. Repeating De Morgan's procedure, we first climbed through his precar-

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[73] I thank George Wheeler of the Objects Conservation Department of the Metropolitan Museum for his analysis. The material of the other six extant Middle Kingdom pyramidia, which is usually called black granite, must also be diorite.

[74] Note the unusual pointed version of the *meh*-sign.

[75] Arnold, *Amenemhet III*, pp. 15–16, pls. 38–39.

[76] Jéquier, *Deux pyramides*, pp. 19–26, figs. 16–20, pl. 6.

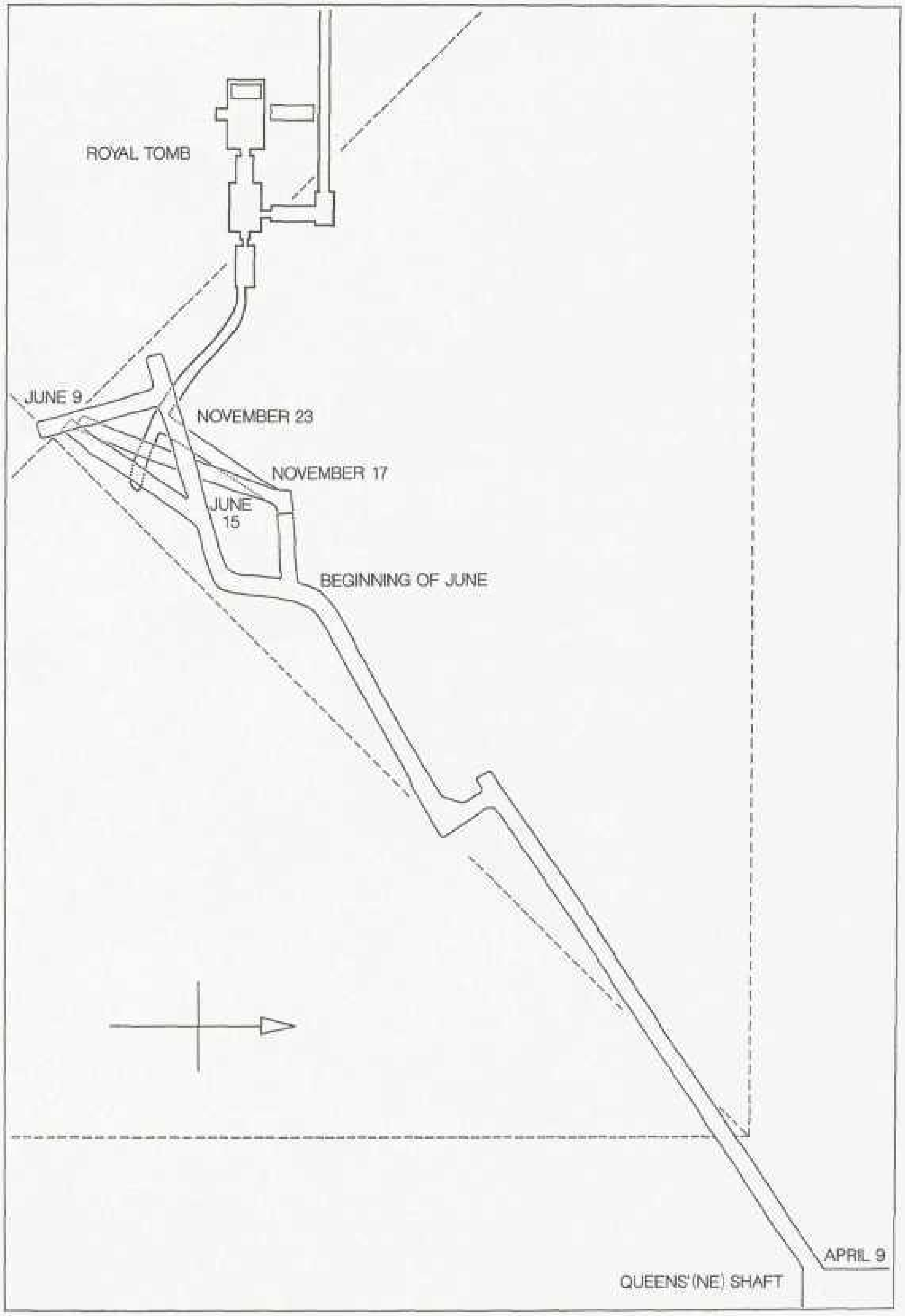

Fig. 7. The exploratory tunnels dug by De Morgan in 1894 under the pyramid of Senwosret III. Drawing D.A. after De Morgan, *Dahchour* II, pl. 15.

ious tunnels on October 13, 1990, and succeeded in reopening the king's shaft five days later.

De Morgan was apparently disappointed by the empty and perhaps never-used tomb, and had his workmen dig a huge system of tunnels to the north of and on top of the burial chambers (fig. 10). No additional chambers were located, and De Morgan did not include the information he gleaned from this operation in his published drawings. Since these corridors have now partially collapsed, we could use them only for hasty reconnaissance work.

THE KING'S TOMB

(figs. 7–8, 10–12; pls. 11–29)

The king's pyramid includes subterranean funerary apartments that have been generally considered the burial place of Senwosret III, but it is now virtually certain that he was actually interred elsewhere (p. 45). It is even doubtful that the funerary apartments beneath the pyramid were ever intended to house the king's burial (p. 43).

The Shaft and Entrance Corridors

The entrance shaft into the royal funerary apartments is located in the court west of the pyramid, 35 m south of the northwest corner. De Morgan found a layer of broken limestone from the pyramid casing covering the mouth of the pit, with no sign of disturbance by later robbers.[77] He rightly concluded that the shaft could not have been reentered *after* the destruction of the casing, which he dated to the Ramesside Period, but which could have continued into the Third Intermediate Period. The first robbery of the pyramid apartments could have occurred much earlier, and at that occasion the original contents of the shaft must have been removed.[78]

The vertical shaft is 1.04 x 2.62 m wide (2 x 5 cubits) and about 11 m deep when measured from the ancient court level. Its mouth was lined with bricks that had deteriorated so badly that we had to reinforce it with a new brick lining. The shaft was not a monumental construction, but rather a purely functional entrance. It was certainly too narrow to be used for the construction work, which was carried out from another location (see below). Vertical entrance shafts appear only in the pyramids of Senwosret II and Senwosret III. Following Old Kingdom prototypes, the earlier pyramids of Amenemhat I and Senwosret I have sloping passages. The later Middle Kingdom pyramids of Amenemhat III and the two kings at South Saqqara have entrance stairways.

From the sloping floor of the shaft, a slightly vaulted corridor 90 cm wide and 1.72 m high leads eastward and gradually downward through layers of hard sand. Since the tunnel had no lining along much of its length, large sections of the south wall had collapsed, and we had to reinforce them with bricks. After a distance of 32.23 m, and about 1.96 m below the level of the bottom of the shaft, the final 10 m of the corridor are lined with limestone; this section is 92 cm wide and 1.79 m high. The lining consists of heavy floor slabs, two courses of wall blocks, and ceiling blocks carved into the shape of a shallow vault.[79] All the blocks are large, the surfaces are carefully dressed, and any irregularities were repaired with plaster. The most amazing technical feat is the tightness of the joints; in many places the blocks fit so snugly that the junctures are difficult to discern. Only at the wide doorway that leads into the royal crypt do irregularities appear in the sequence of wall blocks. Here the joints are wider and the height of the courses changes, suggesting that this part of the wall was constructed separately (see below).

De Morgan did not find any remains of brick or stone blocking in the entrance passage. We know from the tomb of Queen Weret II (p. 77) and the pyramid of Amenemhat III at Dahshur that tomb robbers dug only narrow tunnels through blocked corridors. Therefore, if the corridor was found devoid of bricks or stone blocks, it must have been empty before the robbers entered. Perhaps after the decision was made to bury the king elsewhere, it was no longer deemed necessary to block the passage.

Following the 10 m long stone-lined corridor described above, the route to the apartments turns to the right (south). At that point, a chamber had to be inserted in order to turn the royal coffin or other bulky equipment 90°. The chamber measures 1.50 x 2.40 m, just large enough for such a maneuver, and has a ceiling height that rises to 2.75 m. Horizontal slabs were used for the ceiling.

A short passage leads from the turning chamber directly into the antechamber of the crypt; the doorframe adjoining the antechamber has slightly curved posts. The passage has a flat ceiling and is only 1.20 m wide, 1.96 m high, and 4 m long. As is evident from the placement of the upper door sockets, the builders intended to place a door on the passage side that could be locked from outside (north).[80] Since no one would be expected to come from the inside, and since anyone walking through the passage could draw the door bolt, one has to assume that the door was sealed shut. Thus, the door would have had only symbolic value and would not have presented an obstacle to intruders. Since the royal crypt was considered to be the *Duwat* (Netherworld), the door would have marked the entrance into that realm.[81] Perhaps the door would have been ceremonially opened for the king's burial and sealed thereafter. That no wood door was ever installed is obvious, since only the upper sockets had been prepared.

The Antechamber

The antechamber is one of the most beautiful extant examples of Middle Kingdom stone architecture. The proportions and the shape of the room are exceptionally harmonious, the execution of the masonry with its barely visible joints is astounding, and the surface of the limestone is absolutely flat and smooth. A shallow vault was cut into the roof beams, similar to that in the entrance passage; it does not seem to represent a segment of a circle. The room measures 2.34–2.35 x 3.69–3.71 m, and its ceiling is 3.60–3.61 m high at the apex of the vault, considerably higher than the crypt itself. Four courses of blocks are used in each wall, the height of which decreases upward. Access to the room is provided by three doors that lead to the crypt in the west, the serdab in the east, and the entrance passage in the north; each is crowned by an unusual, slightly projecting lintel, for which no constructed parallels are known.[82] The lowest courses of the walls are slightly discolored by debris that probably came from the bent tunnel (pp. 40–41) behind the serdab (see below). According to a visitor who saw the tomb only two days after its discovery, "The chamber is encumbered with heaps of earth and rubbish on the ground."[83]

The Serdab

In the east wall of the antechamber, a door with slightly curved doorposts leads into a small chamber, which is here referred to as the serdab, although its original function remains uncertain.[84] The serdab is 3.00 x 1.57 m and 2.86 m high.

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[77] According to Legrain, in De Morgan, *Dahchour* II, pp. 89–97.

[78] Even if the funerary apartment was not used for a burial, the shaft would certainly have been blocked with masonry or brickwork.

[79] In this publication we follow throughout the example of El-Naggar, *Les voûtes*, vol. 2, p. 10, who rightly renounces the cumbersome differentiation between true and false vaults.

[80] Similar door sockets were found in the pyramid of Amenemhat III, see Arnold, *Amenemhet III*, fig. 24, pls. 51, 53.

[81] Catharine H. Roehrig ("Gates to the Underworld: The Appearance of Wooden Doors in the Royal Tombs in the Valley of the Kings," in *Valley of the Sun Kings*, ed. Richard H. Wilkinson [Tucson, 1995], pp. 82–107) comes to a similar conclusion that doors in the royal tombs of the New Kingdom did not have a practical function.

[82] A pottery model of a house from El-Amrah (British Museum, London EA 35505) has a timber-framed door with a similar protruding lintel, see A. J. Spencer, *Early Egypt: The Rise of Civilization in the Nile Valley* (London, 1993), p. 34, fig. 18.

[83] Amy Stretcher, "A Visit to Dahchour," *National Review* (Nov. 1894): p. 766.

[84] Lacking a better expression, Egyptologists have used the term serdab for corresponding chambers in Old Kingdom pyramids, see Labrousse,

Three courses of blocks form the walls; the five ceiling blocks were carved into a shallow vault from the underside. As can be seen from the location of the upper sockets, a wood door was intended to be fixed on the antechamber side. Again, one has to assume that the door was never installed because no lower sockets were cut. One also has to assume that whatever was in the room had to be ritually secluded, perhaps in the same manner as cult images that are placed in chapels that open from the outside. The walls are covered with graffiti (discussed on pp. 42–43). In the southeast corner of the chamber, a large rectangular hole was cut at a later time (pp. 40–41).

The Crypt

The entrance to the royal crypt consists of a simple door with curved posts. Following tradition, the crypt is a rectangular, vaulted granite chamber oriented east-west, with the sarcophagus placed along the west wall, its head end facing north. The chamber is 2.70 m wide (exactly 5 cubits + 1 palm) and 5.24 m long (10 cubits = 5.25 m); the surplus width of 1 palm over 5 cubits might have been a technical necessity. The 3.18–3.19 m high apex of the roof equals 6 cubits (3.15 m) and matches the height of Old Kingdom royal crypts. One may assume that a ratio of 5 x 10 x 6 cubits was envisaged for the width, length, and height of the chamber.

The dimensions are comparable to other Twelfth Dynasty royal crypts,[85] which are also 10 cubits long (5.25 m), and confirm the observation that Middle Kingdom royal crypts are slightly smaller than those of the later Old Kingdom, which have proportions of 6 x 15 x 6 cubits.[86] One reason for reducing the crypt's length, but probably not the main one, may have been that Middle Kingdom royal sarcophagi were placed directly against the back wall, rather than standing some distance from it, as was done in the Old Kingdom.

DIMENSIONS (IN METERS) AND MATERIAL OF ROYAL CRYPTS

	W.	*L.*	*H.*	*Material*
Late 5th–6th Dynasties	3.15	7.875	3.15	granite or limestone
Lahun 621[87]	3.15	5.25	2.85	granite
Senwosret II[88]	3.13	5.25	2.845	granite
Senwosret III	2.70	5.24	3.18–3.19	granite
Amenemhat III (Dahshur)[89]	2.77–2.78	5.25	2.74–2.77	limestone
Amenemhat III (Hawara)[90]	2.28	7.85	2.30–2.35	quartzite

The differences in height are due to the varying types of roof construction. The widths diminish slightly after Senwosret II, so that the side walls are closer to the head and foot ends of the sarcophagus. Only the lengths are consistent, except for the chamber of Amenemhat III at Hawara, which had to be elongated to accommodate the canopic chest.

Senwosret III's burial chamber was built completely of red granite, except for the limestone foundation of the front wall, which is structurally part of the antechamber. The walls of the crypt were built of two courses of granite blocks that carry the beams of the shallow pointed saddle roof. The ceiling consists of a vault carved from the underside, which seems to be a segment of a circle with a radius of 1.45 m.

The granite surfaces of the walls and ceiling were covered with a thin layer of white plaster that has flaked off in some areas, producing unsightly dark patches. White plaster also covered the granite that blocked the opening in the north wall; the limestone blocking of the canopic niche was not covered because the material is naturally white. The crypt of Senwosret III was the last to be built in granite. That built at Dahshur by his successor Amenemhat III was made of limestone,[91] suggesting that the application of white plaster in the crypt of Senwosret III was done later, in connection with other alterations to the pyramid complex. This significant modification of color suggests that ideas concerning the symbolic value of the room had changed.

The floor of the crypt consists of at least five red granite slabs. Since the west end of the room is covered by the sarcophagus, the complete arrangement is not visible. In front of the sarcophagus, eight 15 cm square depressions in two groups of four were carefully cut into the surface of the paving; one was chipped and repaired with plaster. The depressions could have stabilized a scaffolding that held the sarcophagus lid in position before it was closed. However, such an explanation is unconvincing, because similar depressions are found in front of canopic chests,[92] which would not have required complicated methods for storing and closing their lids.[93]

In the middle of the crypt's south wall an opening leads into the canopic niche. The 98 cm wide entrance was tightly blocked by five limestone beams, of which the lower four are still in position; the uppermost is missing. Beyond this opening lies the square niche itself, which measures 63 cm on each side and is 148.5 cm high. The masonry of the chapel consists of small limestone slabs that were not bonded into the granite wall of the crypt. In the limestone floor of the niche are four depressions about 11–12 cm square, which were filled with plaster at some point, increasing the mystery surrounding their purpose. The ceiling slabs are rather thin, and have broken in the center. The material above them seems to be *tafl*, suggesting that the space for the niche was not part of the crypt's huge construction shaft (see below), but that it was dug directly into the surrounding *tafl*.

L'architecture, p. 34. For spirited but hypothetical explanations, see Ricke, *BemerkungenAR* II, pp. 123–24, and Siegfried Schott, *Bemerkungen zum ägyptischen Pyramidenkult*, Beiträge zur ägyptischen Bauforschung und Altertumskunde, vol. 5 (Cairo, 1950), pp. 208–9.

[85] Excluding the unusual burial system of Amenemhat II.

[86] See the list in Labrousse's substantial study of Old Kingdom royal crypts (*L'architecture*, p. 210).

[87] Petrie, *Lahun* II, pl. 22.

[88] Petrie, *Lahun* II, p. 6.

[89] Arnold, *Amenemhet III*, p. 31.

[90] W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* (London, 1890), p. 15.

[91] See Arnold, *Amenemhet III*, pp. 31–32, pls. 12c–d, 14a, c. Probably for safety reasons, quartzite was used in the pyramid of Amenemhat III at Hawara to construct a burial chamber composed of only a few blocks. The chamber was carved from a single block, while the roof was composed of three blocks. See W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* (London, 1890), p. 14, pl. 4.

[92] Similar sockets are found inside the canopic chapel of Queen Nefrethenut (see here pp. 62–63), as well as in front of the sarcophagus of Queen Weret II (see here pp. 79–80).

[93] Two round holes were drilled into the floor *behind* the sarcophagus of Unas. They were apparently meant to secure the sarcophagus with stone dowels, which were supposed to fall out of the underside of the sarcophagus when it was pushed over the holes (similar to the mechanism of the sarcophagus lid of Senwosret III). However, the maneuver was not carried out, see Labrousse, *L'architecture*, p. 143, pls. 13, 60–61.

Given that it was to house a royal canopic chest, the niche's small size is strange.[94] Further complicating the situation is the absence of the canopic chest. If a stone chest had been placed in the niche, it would still be in position, since the gap left by the missing upper blocking stone is too small to allow the removal of a large box. De Morgan did not find any traces of a broken chest, and we have to assume that it never existed. It also seems unlikely that the uppermost blocking stone was ever put in position. Had tomb robbers pulled it out, the edges of the surrounding blocks would have been damaged, and De Morgan probably would have found the stone itself. From these observations it is clear that the canopic niche was added to the crypt and that a canopic container was never installed.

Opposite the canopic niche, in the north wall of the crypt, De Morgan found the opening of a construction corridor that connected the crypt to the limestone-lined portion of the entrance corridor. The opening is 1.50 m wide and 1.275 m high, and was sealed from the inside of the crypt by one small and two large granite blocks that were subsequently covered with white plaster. Still in position in the floor of the construction corridor were two skid poles used for pulling heavy stones into the chamber. The objects they were meant to carry can only have been the sarcophagus and its lid, which would fit exactly in the corridor.[95] Unfortunately, parts of the corridor's ceiling have broken since De Morgan's work, releasing masses of debris that prevented us from examining the space.

THE KING'S SARCOPHAGUS

(fig. 8; pls. 12d, 14, 18, 19a, 20a, c–d, 21b, 28–29)

Bibliography: De Morgan, *Dahchour* II, pp. 88–89, fig. 131; Schwab, "Sarkophage," pp. 181–82, 230–31, pl. 63

The perfectly preserved red granite sarcophagus is a masterpiece of Egyptian workmanship. Planes are set at precise right angles, edges are sharply cut, and flat surfaces are polished to a metallic sheen. The only flaw is a natural inclusion of black granite, which appears as a large, circular, black discoloration on the front. We found the lid partially propped open, as had De Morgan,[96] but we closed it in order to restore the quiet dignity of the original arrangement. The interior of the sarcophagus is perfectly clean, leading us to doubt that it was ever used for a burial. One has to assume that the sarcophagus was originally closed and later opened by tomb robbers. Had the lid been left open, De Morgan would have found it either propped up, leaning against the back wall, or on the floor.

The upper rim of the box has two square sockets (fig. 8; pls. 20d, 28) that correspond to sockets in the lid. Stone bolts would have slid down when the lid was pushed into position, locking together the lid and box.[97] Had the sarcophagus been closed in this manner, the robbers could not have opened it without breaking the lid, leading us to assume that the lid was placed in position without employing the locking mechanism. The evidence therefore suggests that the robbers found the lid closed, lifted it far enough to look inside, and, finding nothing, left it as De Morgan and the present excavators found it.

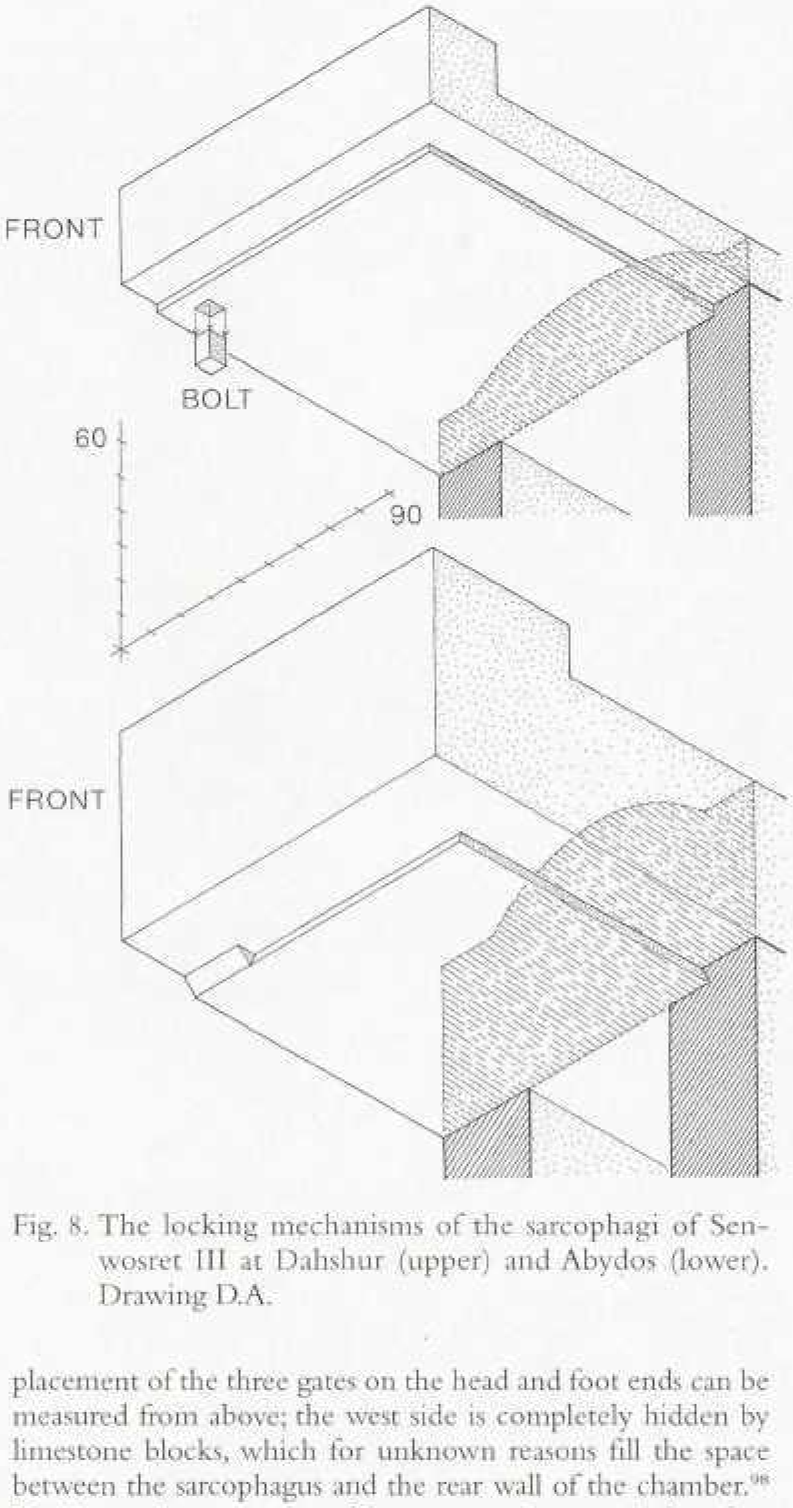

Fig. 8. The locking mechanisms of the sarcophagi of Senwosret III at Dahshur (upper) and Abydos (lower). Drawing D.A.

The lid has the common Middle Kingdom shape of a shallow vault in the center, with rectangular ends on the short sides and flat ledges along the long sides. The lower part of the box has the form of an enclosure wall with palace facade paneling and five gates on the east, including the slightly protruding "main entrance" at the south end of the east side. The placement of the three gates on the head and foot ends can be measured from above; the west side is completely hidden by limestone blocks, which for unknown reasons fill the space between the sarcophagus and the rear wall of the chamber.[98] De Morgan's assumption of five gates on the west is therefore hypothetical,[99] and probably incorrect, since both the sarcophagus of Amenemhat III at Dahshur and the great proto-

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[94] The granite canopic chest in the king's cenotaph at Abydos measured about 1 x 1 m (*Abydos* III, pp. 26–27, pl. 41). The niche that may have been intended to contain the canopic chest of Amenemhat III in his pyramid at Dahshur measures 0.95 x 1.02 m and is 1.50 m high (Arnold, *Amenemhet III*, p. 23, pl. 10a, c). The canopic chest in the crypt of Hawara measures 0.90 x 0.90 m and is 1.05 m high (W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* [London, 1890], p. 17). Even the canopic chests of the royal women of the Senwosret III complex would not have fit in the king's canopic niche, which could have accommodated only a wood chest. See also Aidan Dodson, *The Canopic Equipment of the Kings of Egypt* (London, 1994), pp. 22–23.

[95] For parallels see Arnold, *Building*, pp. 273–74, fig. 6.33.

[96] On p. 97 (*Dahchour* II), he states: "Le sarcophage, magnifique pièce de granit rose d'Assouan, avait été ouvert et pillé à tel point qu'il n'y restait même pas des poussières."

[97] In addition to the two sarcophagi of Senwosret III at Dahshur and Abydos, a few more sarcophagi with similar devices are known, see De Morgan, *Dahchour* II, p. 46, fig. 105; John Garstang, *El Arabah*, Egyptian Research Account 1900 (London, 1901), p. 7, pl. 6, lower left; Arnold, *Senwosret I*, vol. 3, p. 29, pl. 26.

[98] Perhaps the blocks supported the suspended lid before it was closed.

[99] De Morgan, *Dahchour* II, fig. 131.

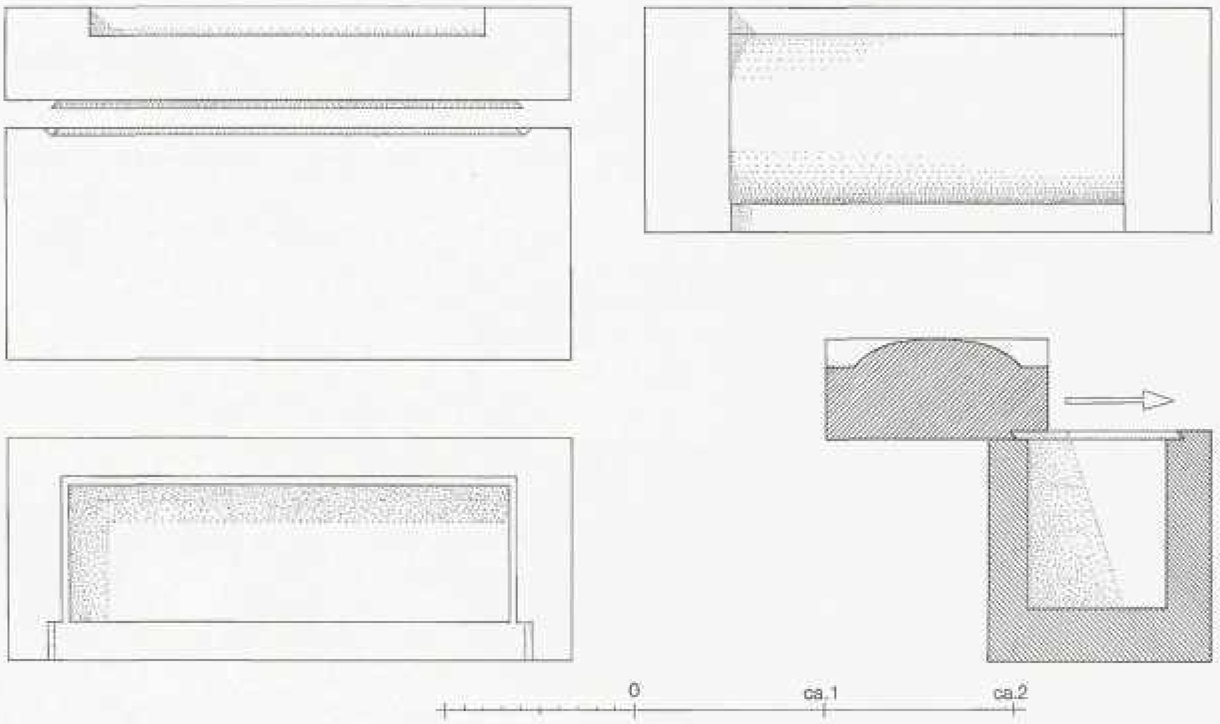

Fig. 9. The granite sarcophagus of Senwosret III in his cenotaph at Abydos. Scale 1:40. Drawing D.A. after *Abydos* III, pl. 40, no. 16.

type for this decoration, the enclosure of the Djoser complex, have only four gates on the west side. Projections and recesses are decorated with the typical pairs of vertical grooves. On the upper ends of the panels at the corners of the sarcophagus and above the "main entrance" are large groups of small, nearly invisible square depressions arranged in eight registers, which replicate the "window" pattern of early paneled walls (pp. 23–24).

To date, only four sarcophagi of the paneled type are known from Twelfth Dynasty royal monuments (Lahun 621, Senwosret III, Amenemhat III at Dahshur and Hawara), as well as a few queens' tombs. While such complex decoration is somewhat rare, the type was not restricted to burials of the royal family; at least six more examples are known from Lower Egyptian private tombs of the Middle Kingdom.[100]

The granite sarcophagus of Senwosret III found in his tomb at Abydos is plain (figs. 8–9), again suggesting that the paneled type was not connected with the rank of its owner, but rather with local traditions. No paneled sarcophagi have been found at Abydos or any other Upper Egyptian site, possibly indicating that the type has its origin in Lower Egypt or, more precisely, in the architecture of the Djoser complex.[101]

The special care taken to lock the sarcophagi of Senwosret III at Dahshur and Abydos is remarkable.[102] The main difference between the locking systems is that the grooves of the Abydos sarcophagus were undercut (figs. 8–9), preventing the lid from being lifted, while the Dahshur sarcophagus had bolts that slipped into place after closing, preventing the lid from being pushed forward.

Our measurements of the Dahshur sarcophagus do not differ significantly from those of De Morgan.

Dimensions:	L. of bottom	255.0 cm
	W. of bottom	118.6 cm
	H. of bottom	110.0 cm
	H. of base	27.0 cm
	H. of panels	44.7 cm
	L. of lid	243.4 cm
	W. of lid	104.0 cm
	H. of lid	29.8 cm

The following list of dimensions of Twelfth Dynasty royal sarcophagi confirms the strange phenomenon that the length, width, and height of the objects seem to have gradually increased with succeeding royal burials.[103]

It is peculiar to observe that while the sarcophagi grew in size, the widths of the chambers gradually shrank (see above).

DIMENSIONS OF ROYAL SARCOPHAGI (IN CENTIMETERS)

	L. of box	*W. of box*	*H. of box*	*H. of lid*
Lahun 621	237.4	96.4	83.9	21.7
Senwosret II	246.8	104.7	?	?
Senwosret III (Dahshur)	255	118.6	110	29.8
Amenemhat III (Dahshur)	261.1	115.1	13.2	29.8
Senwosret III (Abydos)	293	116	142	50
Amenemhat III (Hawara)	315	169	141	36

If we accept this observation as a chronological indicator, we must consider the possibility that the Abydos sarcophagus of Senwosret III follows that of Amenemhat III at Dahshur. Could this be another indicator that the Abydos complex of Senwosret III was built late in the king's reign, at a time when his son was already preparing his own pyramid at Dahshur?

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[100] Schwab, "Sarkophage," pp. 190–200, 224. The latest known though somewhat different example is that of the Kushite King Aspelta (580 B.C.E.) from Nuri, now in the Museum of Fine Arts, Boston (23.729), see Dows Dunham, "An Ethiopian Royal Sarcophagus," *Bulletin of the Museum of Fine Arts, Boston* 53 (1945): pp. 53–55.

[101] This consideration throws some doubt on Schwab's suggestion that the paneled sarcophagus type has its origins in both Upper and Lower Egypt ("Sarkophage," pp. 196–206).

[102] For the locking systems of sarcophagi, see Schwab, "Sarkophage," pp. 84–85.

[103] For a similar phenomenon in the dimensions of the royal tombs of the New Kingdom, see Erik Hornung, *The Valley of the Kings: Horizon of Eternity* (New York, 1990), pp. 27–28; Arnold, *Amenemhet III*, p. 35.

THE ROOF OF THE THREE CHAMBERS

(figs. 10–11; pls. 14, 16–18, 27b–d)

Bibliography: De Morgan, *Dahchour* II, fig. 133

Our work indicates that the roof construction over the royal tomb's three main chambers is more complex than De Morgan's survey suggests. A tunnel dug above the bent passage east of the serdab in 1990 revealed that three layers were used to construct its roof. The top of the lower course of roof blocks lies 4.19 m above the pavement level of the serdab. A second stone course, 1.55 m high, reaches the height of 5.74 m above the pavement. Directly on top of these two limestone courses is a layer of large black bricks that belong to the fill of the construction trench.

The limestone courses must continue to the west, over the antechamber, although our 1 m long tunnel did not reach it. Since the ceiling of the antechamber is 75 cm higher than the serdab, one might expect that the second course is higher than 5.74 m above the pavement level, and that there may be an upward step in the upper roof construction to a level of about 6.50 m.

A triple roof construction was used to protect the crypt from the pressure of the pyramid. The crypt's ceiling is composed of five pairs of upright granite beams that form a gable roof, the underside of which was carved into a vault. The pointed apex, now invisible, must be about 4.00 m above the pavement level. On top of the granite beams are five pairs of sloping limestone blocks that form a saddle roof with a steep 62° angle. The tops of the blocks are beveled, creating a V-shaped groove along the central joint, which is similar to the roof construction of the crypt of Amenemhat II.[104] The vertical joints between the pairs of saddle roof blocks are only 30 cm long. Each block measures about 1.05 x 1.7 x 4.7 m and weighs approximately 23 tons. The limestone roof beams sit on an impost composed of two horizontal courses of relatively small limestone blocks, which serve as a foundation above the soft *gebel* that surrounds the chamber. We were able to peer into the interior of the saddle roof's east end and found it completely bricked up. The purpose of the brick fill is discussed on page 111.[105]

Above the limestone saddle roof is an enormous brick vault, which also protected the crypt from the pressure of the pyramid. The brickwork was partially exposed by De Morgan's tunnels, but many collapses have occurred that now obscure the structure. It seems, however, that an unusual method was used to construct the vault. All bricks were laid on their flat sides. The alternation of rings of headers and stretchers rather than occurring in a vertical sequence, as they occasionally do in vaulting,[106] instead occurs from one rib to the next (fig. 11).[107] The vault may reach the desert surface at

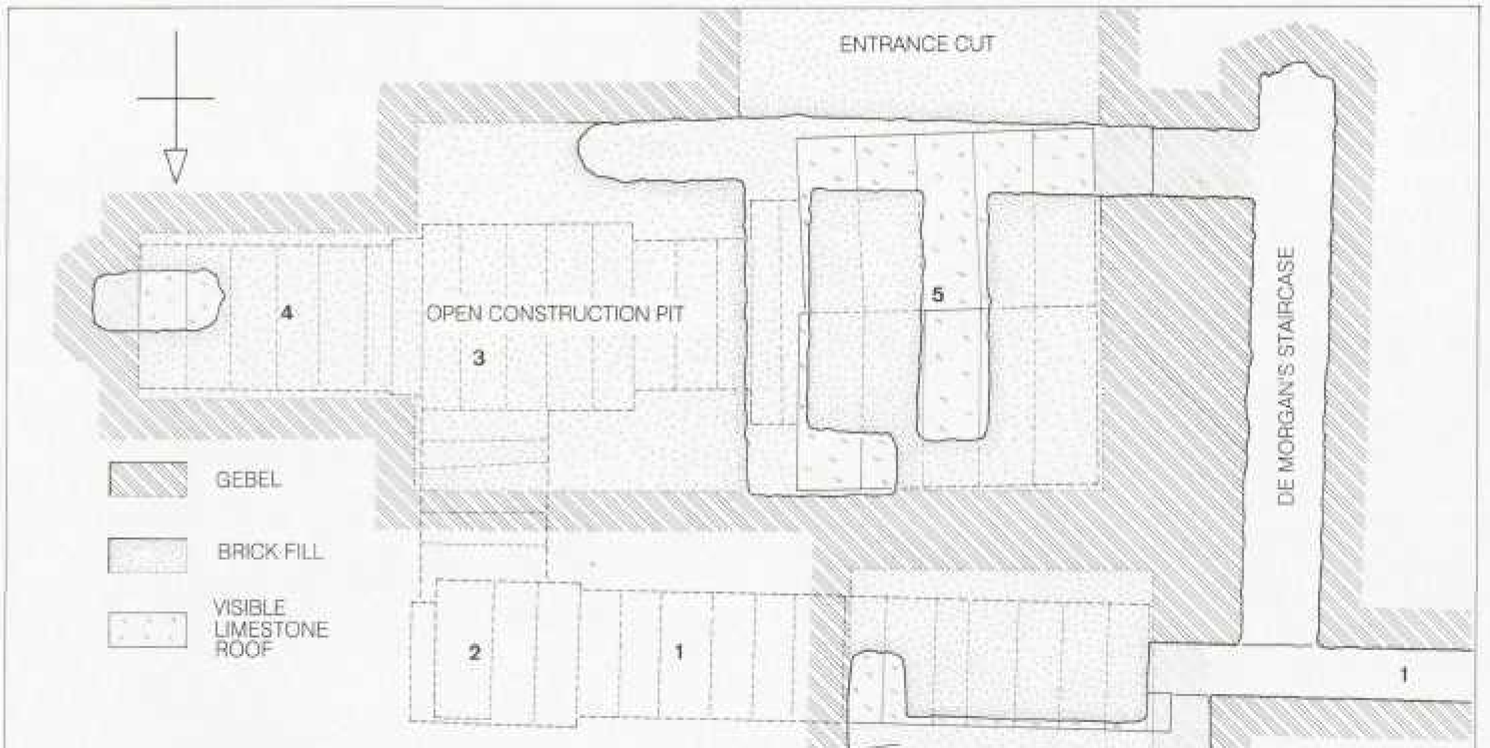

Fig. 10. Sketch plan of De Morgan's test tunnels above the roof of the funerary apartments of Senwosret III. 1) Entrance corridor. 2) Turning chamber. 3) Antechamber. 4) Serdab. 5) Crypt. Drawing D.A.

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[104] De Morgan, *Dahchour* I, p. 36, fig. 83. Another example is found in the anonymous Thirteenth Dynasty pyramid at South Saqqara, see El-Naggar, *Les voûtes*, vol. 2, pl. 146.

[105] In order to coordinate the measurements of the limestone saddle roof with those of the granite roof below, we sank a 4 m deep shaft above the southwest corner of the crypt, and finally reached the expected corner block of the granite vault (see here pl. 27b).

[106] For examples see El-Naggar, *Les voûtes*, vol. 2, figs. 270–73.

[107] No clear parallels can be found in El-Naggar, *Les voûtes*. One has to realize, however, that the irregular and partially collapsed tunnels cut into the vault by De Morgan may create a misleading impression of the construction.

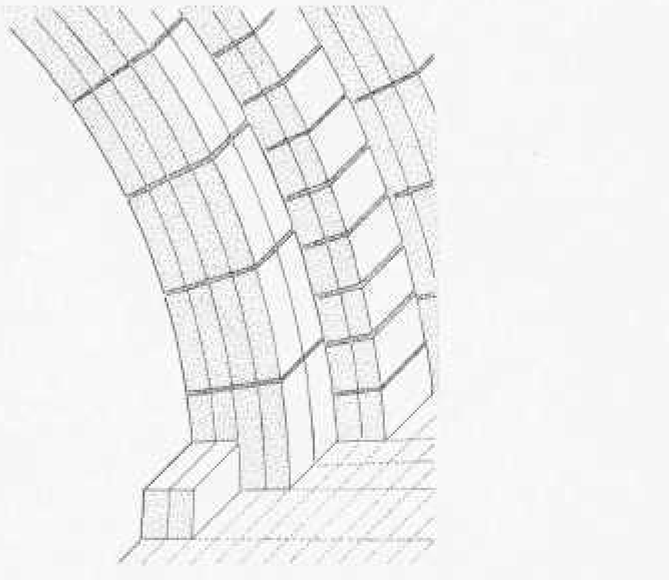

Fig. 11. Conjectural system of alternating rings of headers and stretchers in the brick vaults above the king's crypt. Drawing D.A.

about 45.00 m above NN and may be 4.5 m thick. Contemporary large brick vaults are known from the boat pit of Senwosret III at Dahshur,[108] the crypt of Amenemhat III at Hawara,[109] and the Second Intermediate Period tomb of a local ruler at Dara.[110]

Several tunnels cut by De Morgan have advanced our understanding of the roof construction (fig. 10).[111] The main access to his tunnels is a rough stairway cut on the south side of the entrance passage, at a point just before the beginning of the limestone lining. The steep staircase reaches a height of about 8–9 m above the entrance passage,[112] and then turns to the east toward the crypt. The miners dug through the solid *gebel* and continued into the brick vault. De Morgan's main west-east tunnel passes over the roof of the crypt and has two parallel side branches to the north. The first branch, above the west end of the roof, has a high step up that leads into another tunnel reinforced with beams, which is now too precarious to enter. The second branch, which is 8 m from the first, turns to the west after a few meters and ends. These tunnels expose sections of the roughly dressed, sloping surface of the limestone saddle roof.

THE CONSTRUCTION SHAFTS

(fig. 10; pls. 14–18)

Different methods were used to construct underground chambers, depending mainly on their depth. If the level of the chambers was very deep, an underground cavity was hollowed out and the stone-lined rooms were constructed within it. Access for the builders was provided either by means of a construction shaft or a sloping tunnel. If the chambers were large and so close to the surface that the covering *gebel* became too thin, an open pit was excavated and the building material was lowered either directly into the pit or down a ramp or "entrance cut."[113] After the chambers were completed, the area above the roof was filled up to the original desert surface.

At the pyramid of Senwosret III the open-pit method was favored, although several circumstances necessitated the later use of a construction shaft. The three main chambers of the royal tomb are so large and their roof so high (between 6 and 7 m) that it would have been dangerous to dig an enormous cave into the soft *gebel* layers. Instead, the three rooms must have been built into an open-air pit or trench at least 6.5 m wide (north-south) and 17 m long (east-west), which was accessible by means of an entrance cut (fig. 10). It is possible to deduce the location and direction of access to the entrance cut. The east side is ruled out because we found the *gebel* directly east of the serdab preserved. Had an entrance been cut from the west, it would have been crossed by De Morgan's ascending north-south staircase off the unlined corridor. Since De Morgan located a secondary construction shaft in the north (see below), this side also could not have been used. Therefore, the only possible location for an entrance cut would be the south, where the over 6 m wide, brick-filled lower end of the entrance cut appears along the south side of De Morgan's main tunnel.

De Morgan discovered a 3.2 x 4.6 m construction shaft, which was 2.5 m north of and separate from the crypt. He reported, "Le sarcophage fut apporté par une autre voie que la difficulté des fouilles de bas en haut dans un puits ne m'a pas encore permis de suivre."[114] In order to explore this brick-filled shaft, De Morgan dug another tunnel from the north wall of the entrance passage directly in front of the lined section. The tunnel runs behind the passage's limestone lining, ascends to the top of its roof, reaches the northeast corner of the brick-filled construction shaft, and finally turns a short distance to the south. Entering De Morgan's tunnels, we were able to inspect the northwest and southwest corners of the construction shaft and measure its west-east dimensions. But we could not reach the other corners where, according to De Morgan, the shaft opens into the short tunnel leading to the crypt. Again, according to De Morgan, at the point where the construction shaft joins the tunnel, a huge wood lintel 35 x 40 cm in diameter was inserted into the wall in order to keep the *gebel* from falling.

The question arises as to how both the open pit and the shaft could be dug only 2.3 m apart without causing the thin partition wall between them to collapse. The only answer is that both of them could not have been dug at the same time! The large entrance cut must have been excavated first, and the construction shaft opened only after the main pit had been closed. The use of two construction methods is a clear indication of a change in plan. All underground apartments must have been completed and the site leveled for the construction of the pyramid when it became necessary to reopen the tomb.

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[108] De Morgan, *Dahchour* I, p. 82, figs. 201–2. See here pl. 151.

[109] Arnold, *Amenemhet III*, p. 85, fig. 42.

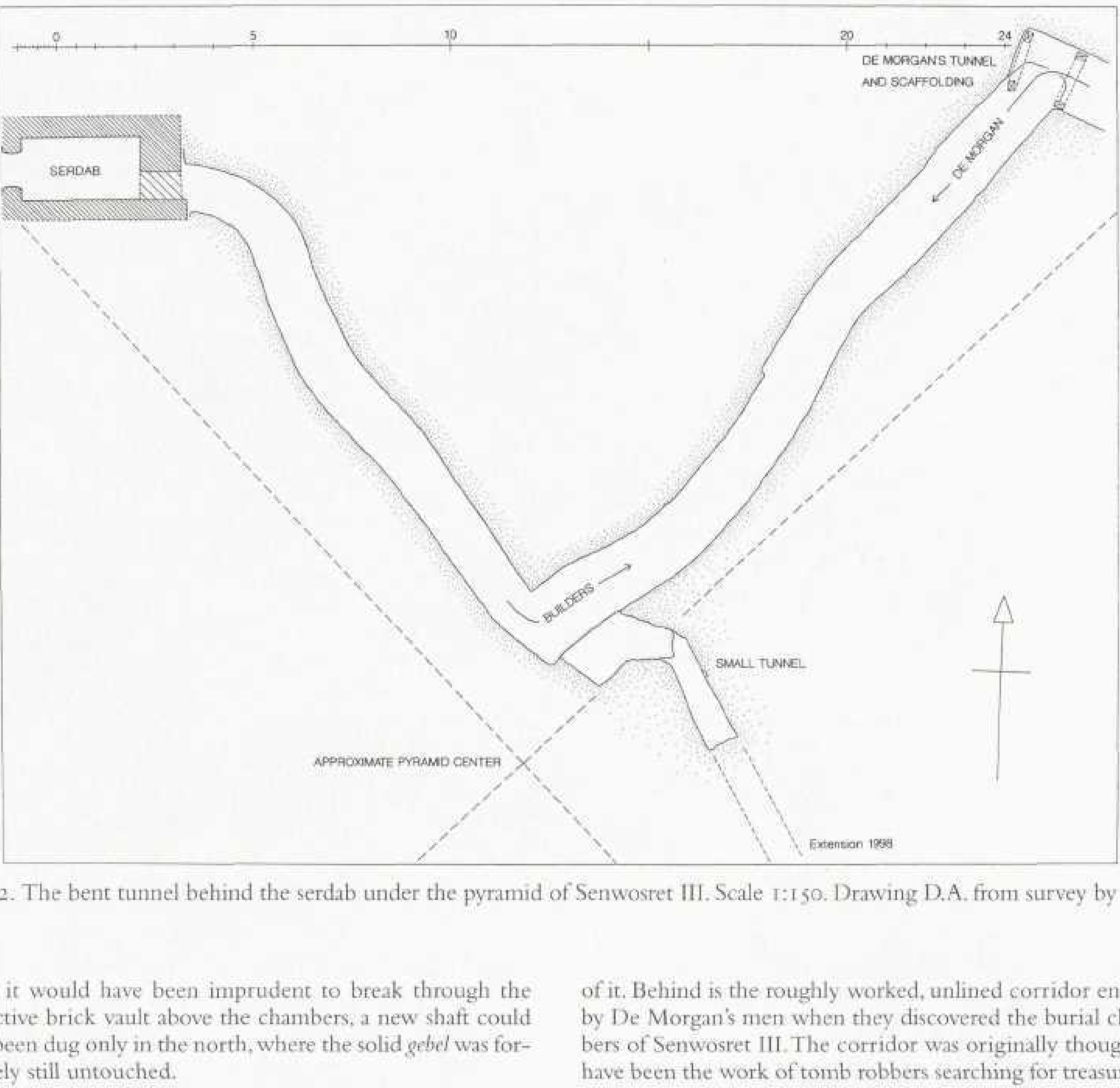
[110] R. Weill, "Fouilles de Dara," *ASAE* 46 (1947): p. 329, fig. 25; El-Naggar, *Les voûtes*, vol. 1, p. 207, vol. 2, figs. 266–67.

[111] Since De Morgan neither mentioned these tunnels in his publication nor used the results to study the chamber roof, one wonders whether he personally saw them. Could they have been dug under Legrain's supervision?

[112] At the upper end, De Morgan's workmen broke into the sand layers on which the brick core of the pyramid was built. Through this breach, sand streamed unchecked and finally forced the workmen out of the staircase. We found the staircase completely filled with clean sand and had serious problems clearing it out and blocking the opening.

[113] Entrance cuts are preliminary, sloping, open trenches used during the construction of underground chambers and entrance passages. A good example was found at the pyramid of Senwosret I at Lisht, see Arnold, *Senwosret I*, vol. 1, pp. 66–68, fig. 24, pls. 42c–d, 43a–b, 92.

[114] Jacques De Morgan, "Fouilles à Dahchour, 1894–1895," *BIE* 3rd ser., no. 6, year 1895 (Cairo, 1896): pp. 124–25.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DE MORGAN'S TUNNEL AND SCAFFOLDING
DE MORGAN
SERDAB
BUILDERS
SMALL TUNNEL
APPROXIMATE PYRAMID CENTER
Extension 1998

Fig. 12. The bent tunnel behind the serdab under the pyramid of Senwosret III. Scale 1:150. Drawing D.A. from survey by R.T.

Since it would have been imprudent to break through the protective brick vault above the chambers, a new shaft could have been dug only in the north, where the solid *gebel* was fortunately still untouched.

It is likely that the additional construction shaft and the short construction corridor were needed to maneuver the sarcophagus into the crypt. This shows that the sarcophagus was not placed in the open pit before the wall blocks were put in position and the crypt was roofed. In order to connect the crypt and the construction shaft, a granite block had to be removed from the lower course of the crypt's north wall; the gap was later closed with markedly smaller granite blocks. The north end of the short construction corridor reached the rear of the limestone lining of the entrance passage, but there is no evidence that either the limestone side wall or roof of the corridor was damaged or removed. The builders must have found a way to squeeze the sarcophagus through the available gap, probably by turning the sarcophagus from east-west (while lowering it down the shaft) to north-south (while moving it through the passage).

THE BENT TUNNEL

(figs. 7, 12; pls. 14–17, 21c, 22a)

In the rear wall of the serdab of the king's tomb a large opening was chiseled through the wall and the floor slabs in front of it. Behind is the roughly worked, unlined corridor entered by De Morgan's men when they discovered the burial chambers of Senwosret III. The corridor was originally thought to have been the work of tomb robbers searching for treasures in the center of the pyramid (fig. 12), and it was indeed clearly tunneled from inside the royal funerary apartments. However, the large size and the regular shape of both the breach and the tunnel suggest that they were not the work of tomb robbers, who would have carelessly cut a narrow opening, but excavated "officially" by the pyramid builders. In front of the opening, two rough steps that considerably increased its height were cut into the floor slabs of the serdab, perhaps because an elongated object similar to a coffin had to be brought through the passage. Since the royal mummy was certainly not interred here, one might imagine a false burial, but there are no chambers in the tunnel. Because no traces of any objects were found, one would have to assume that the mysterious contents of the tunnel were either later removed by tomb robbers or never put in place. The purpose of the ancient tunnel system is unknown. Observation of similar caves subsequently cut in existing tombs (see below) strongly suggests that the winding corridor was added in order to provide the tomb with a new element important for the afterlife of the deceased.

Behind the rear wall of the serdab, the tunnel leads through the *tafl* in a southeast direction toward the center of the pyramid. The corridor is 1.20–1.40 m wide and 1.30–1.40 m high. At 2 m intervals small wall niches were cut for oil lamps. After

14 m, the tunnel turns 90° and continues to the northeast for another 18 m. At the corner, a small tunnel only 5 m long branches off to the southeast toward the center of the pyramid. After 2 m, a layer of hard sandstone inclusions forced the miners in the small tunnel to raise the floor with an 80 cm high step, after which the dimensions of this tunnel rapidly diminish to a width and height of 80 cm. The upper part of the small tunnel was certainly designed for later enlargement to a full-sized corridor.[115] That the small tunnel dates from the Middle Kingdom is suggested by a soot-stained oil lamp made from the rounded bottom of a Twelfth Dynasty vessel, which was found in a wall niche in the upper part of the tunnel.[116]

It is not entirely clear either at what point De Morgan broke into the ancient tunnel system or which parts of the corridor were dug by his workmen. De Morgan's description and plan lack essential details and cannot be easily reconciled with what we found. The original tunnel and that of De Morgan are similar in size, increasing the difficulty of differentiating between them. The shape and the direction of the chisel marks are also confusing, since ancient miners frequently changed the direction of their work, and De Morgan's men may have widened ancient parts of the tunnel. After careful consideration, it can be concluded that the point of breakthrough was probably at the lower end of De Morgan's 4 m high staircase, labeled L (*lambda*) on his plan (here fig. 12, at "De Morgan's tunnel and scaffolding"). Both the 14 m long southeast section and the 18 m long northeast section of the tunnel are believed to be ancient.

Similar tunnels and chambers cut after the completion of construction work are found in the following tombs:

1. The rear wall of the limestone-lined, T-shaped chamber in the subsidiary queens' gallery (pp. 57–58; pls. 68, 70, 72a) had a large opening cut into it; the upper edge of the opening slopes outward. According to De Morgan's plan, the corridor was 4–5 m long and curved to the southeast. Initially believing it to be only a robbers' tunnel, and trying to stop falling masses of sand, we closed the opening without reexamining the space behind it.

2. An opening was made in the rear wall of the shrine of the south tomb of Queen Weret II (p. 78; pls. 60, 66); the upper edge of the breach slopes outward. A short passage leads into a low, squarish, unlined chamber.

3. Behind the rear wall of the royal tomb at Abydos, an 80–90 (!) m long, curved tunnel passes a large chamber before ending in a quartzite-lined crypt, 4.5 x 7–8 m wide and 2.4 m high (fig. 13). Since the tomb is now inaccessible, we cannot determine whether or not the tunnel was part of the original plan or added later in the king's reign.

4. The ring-shaped corridor surrounding the burial chamber of Senwosret II at Lahun may have served a purpose similar to Senwosret III's tunnels.

Two or possibly three of these monuments had openings and tunnels cut through the finished wall of either their crypt or serdab. In example 2, the cave was probably made after the queen's burial. In all cases, the opening into the tunnel has a rectangular, doorlike shape. The corridors themselves are bent or curved, with the exception of that belonging to Queen Weret II, where the space is chamberlike. Only the chamber of Queen Weret II contained remains of objects.

All tunnels and cavelike chambers were presumably added at roughly the same time during Senwosret III's reign, perhaps in response to a new aspect of tomb design or a change in religious practice. The motive that lies behind these alterations is difficult to determine. Several parallels can be found in Theban rock tombs, which tend to have their underground sections deepened and extended. The first such development occurred when the pillared-facade tomb-type was transformed into a deep, interior corridor during the reign of Mentuhotep Nebhepetre.[117] Jan Assmann, who has studied the appearance of winding tomb corridors from the Amarna Period on,[118] suggests that elongated corridors leading into burial chambers were required when underground parts of the tombs were made accessible for the feasts of the dead. Karl Seyfried, dealing with the phenomenon of spiral-shaped corridors,[119] stresses that they depict the nocturnal path of the sun through the underworld, and that their meaning lies in the ability to encircle, or "carve out," an underground island for an imaginary Osiris tomb. This latter interpretation has been explored in depth by Diethelm Eigner in his study of Late Period Theban tombs.[120] Could the cavelike corridors of the time of Senwosret III be early versions of a similar feature? It is also possible that the bent tunnels are connected with the god Sokar, who possesses chthonic as well as solar aspects, and rules as the "Lord of the *qrrt*-caverns" over the underground corridors of quarries, mines, and cemeteries.[121]

THE FINDS

Bibliography: Jacques De Morgan, "The Dahshur Explorations," *Harper's New Monthly Magazine* 92 (May 1896): p. 920; idem, *Dahchour* II, p. 97, fig. 141

De Morgan reports that in the crypt "aucun objet, portant des textes, ne fut reconté."[122] However, on the same page he mentions that he found in the tomb "quelques vases de terre," which unfortunately have disappeared. De Morgan also discovered the upper half of a broken bronze dagger with an ivory handle.[123] Because it was found in the tomb of Senwosret III, it has been considered to be the earliest example of a type of dagger better known from the Hyksos Period and the early New Kingdom.[124] A more convincing explanation for the appearance of the dagger is that it was actually brought into the tomb by intruders of the Hyksos Period, who might have slid it under the lid of the sarcophagus and broken it. Since chaotic piles of potsherds, alabaster fragments, bones, and bits of wood furniture are regularly found in plundered Middle Kingdom tombs (including that of Queen Weret II, see p. 81), the complete lack of such remains suggests that the tomb never contained royal funerary equipment.[125]

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[115] Arnold, *Building*, p. 213.

[116] In 1998, we extended this corridor 10 m to the southeast, but did not find additional chambers.

[117] Dieter Arnold, *Das Grab des Jnj-jtj.f: Die Architektur*, Archäologische Veröffentlichungen, vol. 4 (Mainz, 1971), p. 44.

[118] Jan Assmann, "Das Grab mit gewundenem Abstieg: Zum Typenwandel des Privat-Felsgrabes im Neuen Reich," *MDAIK* 40 (1984): pp. 277–90. However, these spiral-shaped corridors do not lead out of the burial chambers, but connect them to the aboveground architecture.

[119] Karl J. Seyfried, "Bemerkungen zur Erweiterung der unterirdischen Anlagen einiger Gräber des Neuen Reiches in Theben-Versuch einer Deutung," *ASAE* 71 (1987): pp. 229–49.

[120] Diethelm Eigner, *Die monumentalen Grabbauten der Spätzeit in der thebanischen Nekropole* (Vienna, 1984), pp. 163–83.

[121] In the 4th and 5th hour of the Amduat, see Erik Hornung, *Das Amduat: Die Schrift des verborgenen Raumes*, pt. 2 (Wiesbaden, 1963), pp. 80–108. See also Catherine Graindorge-Héreil, *Le Dieu Sokar à Thèbes au Nouvel Empire*, Göttinger Orientforschungen series IV, no. 28, vol. 1 (Wiesbaden, 1994), pp. 34–38.

[122] De Morgan, *Dahchour* II, p. 97.

[123] De Morgan, *Dahchour* II, p. 97, fig. 141.

[124] Walther Wolf, *Die Bewaffnung des altägyptischen Heeres* (Leipzig, 1926), pp. 40–41, pl. 4, nos. 9, 11–14; Manfred Bietak, *Pharaonen und fremde Dynastien im Dunkel*, exh. cat. (Vienna, 1994), p. 269 no. 374, p. 272 no. 382.

The only find we can report is a tiny copper disk pierced through the center, which was found adhering to the front of the sarcophagus.[126] It may have been part of the garment of a person who bent over the sarcophagus.

The pottery mentioned by De Morgan may have been the robbers' water jars and oil lamps. These observations, together with our examination of the interior of the sarcophagus (p. 36) and the lack of blocking in the entrance corridor (p. 34), indicate that the crypt remained unused, and that the king's mummy must have found its final resting place elsewhere.[127]

THE GRAFFITI

(pls. 21c, 23a, c–d, 24–26, 27a)

Bibliography: De Morgan, *Dahchour* II, pp. 93–96, figs. 137–40

When De Morgan entered the underground apartments, he found the walls of the serdab and parts of its north doorframe covered with ancient graffiti apparently produced with sharp pieces of yellow marl (*tafl*).[128] A few were scratched into the stone with a sharp tool. Moisture in the wall surface and the *tafl* substance itself activated the crystallization of salt in the limestone walls, which pushed the drawn lines away from the surface. The lines are now slightly raised above the wall surface, but are still distinguishable.

The representations consist of an assemblage of nearly fifty mostly foreign-looking, under-lifesize male profiles; a few are larger. Six drawings represent entire male figures. Images of a seated falcon and perhaps a boat can also be recognized. More intriguing are a sketch of a structure that could represent the royal tomb, with either the entrance corridor or the sarcophagus, and a figure that vaguely resembles a mummy.[129] Some configurations seem to be senseless doodlings. Since no inscriptions are recognizable, one may assume that the "artists" were illiterate, and because they could not write their names, they recorded their identities with self-portraits. No other royal pyramid chamber contains such drawings.[130]

The history of the monument would allow several possibilities for the date of the graffiti. Some graffiti overlap, and so must have followed each other, but to assume that the graffiti were drawn on different occasions would be too coincidental and ignores the similarity of the faces. The first rather unlikely assumption would be that the graffiti were drawn by the builders themselves, either at the end of the construction work or when the bent tunnel was added behind the serdab (pp. 40–41). However, it seems improbable that Egyptian workmen would have dared to deface the walls of their sovereign's tomb. There is every reason to believe that the graffiti were produced later, by unauthorized intruders.

The first trespassers were certainly tomb robbers, who may have entered the pyramid in the Second Intermediate Period (see the discussion of the dagger handle, p. 41). It is improbable, however, that tomb robbers had enough time and courage to leave their portraits at the scene of their crime. A second violation could have occurred when the pyramid casing was quarried away at the end of the Ramesside period (p. 26). At this time, the tomb entrance may have been accidentally exposed, attracting curious visitors who hoped to find treasure.

Unfortunately, the style of the graffiti also offers several possibilities for the date, because it was a common practice in all periods of Egyptian history to scribble images of heads or feet on walls, potsherds, and other suitable surfaces. Among the graffiti in the serdab of Senwosret III, only one figure is drawn in Egyptian style—a male holding a stick, who wears a belted kilt and a bead necklace. He appears to be a native Egyptian official. The rest of the figures have an unusual foreign appearance. One cannot be sure whether these strange features attest to foreign artists or to Egyptians unfamiliar with official artistic conventions. If the graffiti were drawn by nonnatives, these images are rare examples of the self-representation of foreigners in Egypt.

To identify these features with a specific culture or population is also difficult. The extraordinary hairdo with a prominent forelock (quiff) points to a fashion usually connected with Semite Bedouins.[131] In addition, the portraits have non-Egyptian features such as beaklike mouths, hooked noses, and floating eyes drawn as lenses or circles around a central point. The images seem to have a certain similarity to drawings of human faces found in Aegean artworks, such as Late Helladic III B–C (1300–1150 B.C.E.) and Cypro-Archaic-I (750–600 B.C.E.) painted vases from Cyprus.[132] Could the intruders have been northerners? The late Ramesside period (1190–1050 B.C.E., or the reigns of Ramesses III to Ramesses XI) was an era of large-scale looting in Egypt, the result of government inefficiency and corruption, best described by the Theban tomb robbers' papyri. From the time of Ramesses III on, foreign mercenaries were recruited from among the "Sea Peoples" and other nations, and these groups settled in Egypt. As a consequence of the political and economic situation, such people, together with destitute natives, probably turned to marauding and tomb robbing. It is possible that the graffiti belonged to groups who entered the pyramid in the Ramesside period, perhaps in connection with the dismantling of the complex.

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[125] De Morgan says, however, "Les chambres royales étaient remplies des débris provenant du rameau de mine fait jadis par les voleurs et par lequel j'étais entré dans le tombeau, l'extrémité de la galérie de l'ouest [entrance passage] était aussi encombrée de sables qu'à première inspection je reconnus venir de la surface" (*Dahchour* II, p. 91) and "je fit de suite enlever les débris qui encombraient le tombeau" (*Dahchour* II, p. 97). The level of the accumulated sand in the antechamber is indicated by a brownish discoloration along the walls, which is not higher than half a meter.

[126] Ex. no. 90.13; diameter 5 mm.

[127] Josef Wegner suggests that the king was buried in the Abydos tomb ("South Abydos: Burial Place of the Third Senwosret? Old and New Excavations at the Abydene Complex of Senwosret III," *KMT* 6 [Summer 1995]: pp. 69–71).

[128] The graffiti were drawn with pigment that is apparently undergoing a chemical decomposition, which may finally lead to their disappearance. For this reason and because the sketches represent a unique ethnological and historical document, we decided to copy and republish them in greater detail. Adela Oppenheim traced them at full scale and Thomas Scalise inked versions reduced to one-quarter for publication.

[129] De Morgan, *Dahchour* II, fig. 138.

[130] See also Geoffrey Martin, *The Memphite Tomb of Horemheb: Commander-in-Chief of Tutankhamun* (London, 1989), pls. 146–49.

[131] For instance a relief fragment showing a Semite warrior from the pyramid complex of Senwosret I in The Metropolitan Museum of Art (Rogers Fund, 1913, 13.235.3), see Marsha Hill, *The American Discovery of Ancient Egypt*, ed. Nancy Thomas (Los Angeles, 1996), p. 153. Another possible parallel may be a small group of similar sketches of human heads and faces placed on a Meroitic vessel in the Museo Archeológico Nacional, Madrid (Maria del Carmen Perez Die, *Egipto y próximo oriente* [Madrid, n.d.], p. 111, fig. 16). The vessel certainly dates to the Roman period. I wish to thank Adela Oppenheim for this reference.

[132] Hans-Günter Buchholz, *Prehistoric Greece and Cyprus: An Archaeological Handbook* (London, 1973), pls. 435 no. 1620, 436 no. 1621, 438 no. 1623; Sara A. Immerwahr, *Aegean Painting in the Bronze Age* (Philadelphia and London, 1990), pls. 45–46; Vassos Karageorghis, *Ancient Art from Cyprus: The Cesnola Collection of The Metropolitan Museum of Art* (New York, 2000), p. 95, no. 153.

EVALUATION

The different aspects discussed above suggest that the pyramid's underground apartments did not follow the usual progression of construction, interment, robbery, and exploration, but had a more complicated development, which can be reconstructed according to the following sequence.

1. A plain granite crypt, fairly accurately using later Fifth and Sixth Dynasty royal tombs as prototypes, was built. Evidence suggests that this crypt contained neither a sarcophagus nor a canopic niche, and therefore does not seem to have been intended to house a burial. However, one must also consider the possibility that a sarcophagus had been placed in the chamber, but that it was damaged and removed, perhaps during the roof construction.

2. After the completion of the underground apartments and the leveling of the desert surface, but before the erection of the pyramid, the crypt was reopened in order to install (or replace) the sarcophagus and add a canopic niche. After the completion of this arduous task, the walls of the crypt were restored and covered with white plaster, either to mask the damage, to indicate the new function of the room as a burial chamber, or to reflect a change in funerary customs. The canopic niche has white plaster on the inner edges of the frame, suggesting that the color was applied after the niche was constructed but before it was closed.

3. During or after these operations the rear wall of the serdab was opened and the long, bent tunnel was cut.

4. Despite all these alterations, when the king died he was not buried in the royal crypt, and the splendid tomb remained unused. Nevertheless, the sarcophagus lid was closed and the entrance shaft, though not the corridor, was blocked.

5. Tomb robbers invaded the underground apartments through the entrance shaft and found the sarcophagus empty.

6. Probably late in the New Kingdom, workers rediscovered the entrance shaft during the removal of the pyramid casing and foundation blocks. The graffiti bear witness to their presence in the tomb.

Many features of the pyramid chambers of Senwosret III at Dahshur are not developed from the tomb plans of the two preceding kings, Amenemhat II and Senwosret II, but instead return to late Fifth and Sixth Dynasty prototypes.[133] The east-west alignment of the serdab-antechamber-crypt, with the entrance passage leading from the north into the antechamber, precisely follows Old Kingdom models. The main points of departure are as follows.

1. The walls around the sarcophagus of Senwosret III do not have a palace-facade decoration and are not inscribed with pyramid texts. Because it is now underwater, we do not know if the chambers of Senwosret I contained texts; the other royal tombs of the Twelfth Dynasty were uninscribed.

2. While the canopic chests of late Old Kingdom kings were placed in front of the sarcophagi,[134] Senwosret III later received a true canopic niche in the crypt's south wall; the location southeast of the sarcophagus was maintained. Lahun 621 already had a separate canopic chapel, and many of the tombs of royal women at Lahun and Dahshur have separate canopic shrines (pp. 45, 60–68, 79–81, 120; pl. 30).

3. The serdab is no longer subdivided into three small compartments with low ceilings, but has developed into a single, high, chapel-like room. A similar transformation into one large chamber is seen at Lahun 621. We do not know the purpose of the Old Kingdom tripartite serdab, but must assume that a change in its function had taken place and that a single, probably taller object had to be accommodated. Could the object have been a shrine with a lifesize statue of the king, of which no trace has survived? One also has to consider the possibility that serdabs were not meant to contain real objects, but were instead symbolic spaces.

4. All three chambers have vaulted ceilings, in contrast to Old Kingdom tombs, where only the crypt itself was adorned with a vault.

5. The burial chambers of Senwosret III, along with those of other Twelfth Dynasty kings, are built so deep underground that their roof constructions did not reach the surface. The tops of the roofs of shallower Fifth and Sixth Dynasty royal crypts reached the desert surface.

6. The entrance shaft and passage are located not on the north side of the pyramid, but rather on the west side. The corridor leading to the main chambers turns 180°, so that the antechamber is still entered from the traditional north side.

7. The entrance passage does not pass through a vestibule or waiting room[135] and it is not blocked by the three portcullises typically found in Old Kingdom pyramids.[136]

8. The dimensions of the Middle Kingdom underground apartments are slightly but noticeably smaller than those of the Old Kingdom (p. 35).

These differences notwithstanding, the builders of the Senwosret III pyramid closely followed the prototypes of Old Kingdom royal crypts, apparently in accordance with the basic ideas that shaped the whole pyramid complex. This conspicuous adaptation of Old Kingdom forms stands in contrast to its remarkably loose relationship with the underground apartments of the preceding pyramid of Senwosret II at Lahun. The succeeding pyramid of Amenemhat III at Dahshur diverges even further from the Old Kingdom prototype.[137] Here the underground system contained at least four main units (the royal tomb, the tomb of Queen Aat, the tomb of an anonymous queen, and the long sequence of the south tomb rooms), all connected by corridors and staircases and made accessible by two entrances.

One crucial question remains. If the tomb of Senwosret III was first planned and built as a cenotaph, where did the king originally intend to be buried? In the monument built by Senwosret III at Abydos, or in another tomb still hidden under his Dahshur pyramid? Since the northwest and southwest sectors are occupied by chambers, the only unexplored areas are the northeast and southeast sectors and the area immediately east of the pyramid center, the location that corresponds to the site of the underground apartments in the pyramid of Amenemhat III at Dahshur.

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[133] It is interesting that the crypt follows late Fifth and Sixth Dynasty examples and not those of the Third Dynasty, as do other elements of the complex. The crypts of the Third Dynasty were probably inaccessible during the Middle Kingdom and their layouts had been forgotten.

[134] Labrousse, *L'architecture*, pp. 157–58.

[135] Labrousse, *L'architecture*, pp. 26, 52.

[136] Labrousse, *L'architecture*, pp. 27–28, 53–54, 102–5.

[137] Arnold, *Amenemhet III*, pl. 37.

Excursus A: The Tomb or Cenotaph of Senwosret III at Abydos

(figs. 8–9, 13)

Bibliography: *Abydos* III, pp. 22–28, pls. 40–43

The cult complex of Senwosret III at Abydos consisted of a mortuary or valley temple at the edge of the cultivation[138] connected by means of a causeway to the actual enclosure in the desert, which contained an enormous underground tomb. The monument was explored in 1904 by C.T. Currelly, whose inadequate publication reflects his perfunctory work.[139] From the published plan (at a scale of 1:400!), one can distinguish that the underground gallery is actually composed of about four separate units. The entire configuration is unparalleled, demanding analysis and, of course, reexcavation.

a) Beyond the entrance shaft, the first unit consists of a huge limestone-lined hall (C), which has a ceiling with a stone representation of tree trunks carved into its underside (p. 57). The hall is described by the excavator as "a room of great beauty, C. Although it looks long and narrow on the plan, the proportions are extremely good, and the great blocks that formed the sides and ceiling are of the finest white limestone. The long blocks of stone that form the ceiling are carved to look as if the roof were made of long poles side by side."[140] Hall C measures 2.6 x 8.9 m and is 2.3 m high.

Hall C is flanked by two subsidiary chambers. This T-shaped configuration was probably derived from the T-shaped chamber of Senwosret III at Dahshur (later used as an entrance into the subsidiary queens' gallery, see pp. 57–58). Such an arrangement also appears later, at the end of the north-south corridor in the pyramid of Amenemhat III at Dahshur.

b) The second section consists of a huge, limestone-lined entrance passage (E) that leads into a pair of chamberlike shafts (F, H) of enormous depth (according to the plan 11.60 m deep, following the description only 5.68 m deep). They are somewhat reminiscent of the double-chamber system found in the two Dahshur pyramids of Snefru.

c) The third section serves as the crypt, and has a sloping passage (K) that leads into a granite chamber (L) with a sarcophagus (figs. 8–9). The dimensions of room L are about 3 x 3.45 m and the height 2.1 m. The only available information about the chamber is this brief description.

> . . . a small room lined with blocks of quartzite sandstone. These blocks are exactly the height of the room and very thick. This must have made it very difficult to set them in place, as the slightest tilting would cause them to jam. . . .
>
> The opening from the room into the plugged passage had been carefully walled up with limestone of nearly the same color as the native rock, and also the opening was a little above the bottom of the passage, so that a tunnel going to the bottom, even if spreading out there, would just miss it by a few inches. The removal of the remaining lining showed the canopic box let into the wall at the turning into the passage M, and on the other side of the little room the rock had been hollowed out just enough to allow the great granite sarcophagus to be let into it. . . .

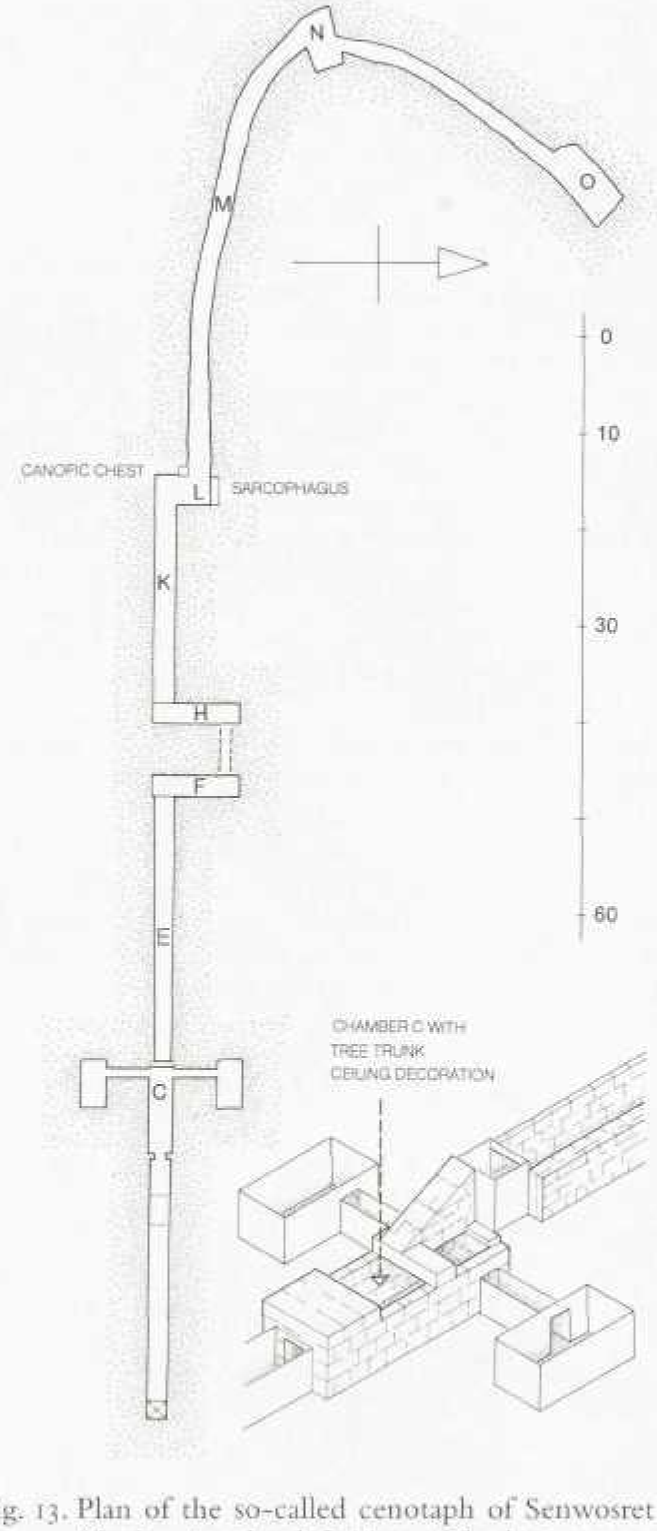

Fig. 13. Plan of the so-called cenotaph of Senwosret III at Abydos. For the definition of the letters, see pp. 44–45. Drawing D.A. after *Abydos* III, pl. 41.

The granite sarcophagus, which was found hidden behind the north wall of chamber L, was amazingly oriented east-west, a position that goes against traditional Egyptian burial practices.

d) The last unit consists of a curved corridor (M) that includes one corridor-chamber (N) and ends in a large, quartzite-lined chamber (O). The description states, "This last room was very carefully lined with great blocks of the same quartzite sandstone. . . . The room O had all the great blocks that reached from the floor to the ceiling prized out." The plan shows that room O measured about 4 x 8.5 m; the height and shape of the ceiling are not described.

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[138] Recently reexcavated by Josef Wegner, see his report, "South Abydos: Burial Place of the Third Senwosret? Old and New Excavations at the Abydene Complex of Senwosret III," *KMT* 6 (Summer 1995): pp. 59–71; idem, "The Nature and Chronology of the Senwosret III–Amenemhat III Regnal Succession: Some Considerations Based on New Evidence from the Mortuary Temple of Senwosret III at Abydos," *JNES* 55 (1996): pp. 249–79.

[139] *Abydos* III, pp. 22–28, pls. 40–43.

[140] *Abydos* III, pp. 22–28.

The curving corridor could have been either part of the original plan or added later, probably during the time when similar curving corridors were added to existing tombs at Dahshur. An examination of the actual granite wall would probably settle this question.

This interesting combination of four architecturally distinct units or sacred spaces bears no resemblance to the king's pyramid tomb at Dahshur. The difference cannot be explained by the earlier date of the pyramid, but strongly suggests that the Abydos tomb was not just a traditional royal burial place but also served some other purpose. Whatever the function of the Abydos monument may have been, its construction marks a high point in the development of Middle Kingdom royal funerary architecture. The existence of the two monuments points prominently to the practice of constructing multiple memorials for Egyptian kings.[141]

As to whether the king's body was actually buried in the sarcophagus of the Abydos tomb, we have the word of Currelly, who states that "exquisite alabaster dishes were taken out and smashed altogether. The majority of these were of the trussed duck pattern, and were the most beautiful pieces of alabaster I have ever seen. No traces of the body were found." The alabaster fragments do indeed seem to indicate the presence of a Twelfth Dynasty burial.[142] The closing mechanism of the sarcophagus (pp. 36–37) also suggests that it was meant to contain a body. On the other hand, the complete absence of human remains is surprising.[143]

Excursus B: Tomb 621 at Lahun

(pl. 30)

Bibliography: Petrie, *Lahun* II, pp. 16–18, pls. 21 no. 11, 22, 25 no. 6

While the Abydos tomb of Senwosret III differs substantially from the pyramid chambers at Dahshur, Dahshur closely parallels the arrangement of tomb 621 at Lahun.[144] Old Kingdom prototypes are followed so closely in the Lahun tomb that one could, at first, mistake it for a royal tomb of that period. However, the tomb includes several architectural features, as well as pottery, that do not appear before the Middle Kingdom.

1. Tomb 621 not only has a sloping passage, but also includes an entrance shaft.
2. The entrance passage ends with a staircase.
3. The entrance corridor is covered by a shallow vault.
4. The tomb does not have a canopic pit in the floor, but rather a large side chamber intended to house the canopic equipment.
5. The sarcophagus belongs to a paneled type that dates to the Twelfth Dynasty.[145]
6. The pottery found in the interior clearly dates from the Twelfth Dynasty.[146]

Since the Dahshur tomb of Senwosret III also follows Old Kingdom prototypes, it would therefore be of great importance to determine the exact date of tomb 621. Since it was older than that of Senwosret III, could it have been a model for his Dahshur tomb? Size and shape suggest that the tomb was intended for a king, rather than a queen, and underground apartments of this type traditionally require a pyramid. Since a royal tomb is expected to be somewhere near the center of a pyramid, one can use the chambers and the length of the entrance passage to reconstruct a monument that would have had a base length of more than 55 m. No trace of such a pyramid was reported by Guy Brunton, and one would suspect that it was never built.

Tomb 621 and the pyramid complex of Senwosret II adjoin each other. That tomb 621 was built first is indicated by an elongated rock platform that protrudes into the pyramid court exactly in front of the tomb.[147] The builders of Senwosret II's monument, fearing that they would cut into tomb 621, did not remove the platform. Furthermore, if our assumption is correct that the dimensions of Twelfth Dynasty royal sarcophagi gradually increase from one king to the next, the sarcophagus in 621 would have to precede that of Senwosret II (p. 37).[148] The entrance corridor of 621 is on the traditional north side, which also seems to confirm a date earlier than that of the pyramid of Senwosret II.

One point suggests that tomb 621 postdates the pyramid. A staircase leading into the subterranean chambers does not appear in royal tombs before Amenemhat III at Dahshur. This seeming contradiction in the dating criteria could be resolved by assuming that tomb 621 was prepared before the pyramid of Senwosret II, by architects who had already included some advanced features in their plans. These features reappeared only in later monuments. According to these considerations, a date for 621 shortly *before* the construction of the tomb of Senwosret II seems inevitable, though assigning the monument to a specific king remains speculative. The tomb could have been planned as a cenotaph for Senwosret II from the beginning. Or it could have been planned as a real tomb for a king who was later buried elsewhere. It is also possible that another prince, who died or disappeared before taking the throne, was the designated successor of Senwosret II.

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[141] See Siegfried Schott, *Bemerkungen zum ägyptischen Pyramidenkult*, Beiträge zur ägyptischen Bauforschung und Altertumskunde, vol. 5 (Cairo, 1950), pp. 142–44.

[142] However, the objects found in the south tombs of the pyramids of Amenemhat III and of Queen Weret II, both at Dahshur, cast doubt on this assumption. Apparently cenotaphs could also contain grave goods, see Arnold, *Amenemhet III*, p. 66.

[143] Josef Wegner, "South Abydos: Burial Place of the Third Senwosret? Old and New Excavations at the Abydene Complex of Senwosret III," *KMT* 6 (Summer 1995): pp. 69–71 presents further arguments for a burial of the king at Abydos.

[144] Guy Brunton, in Petrie, *Lahun* II, pp. 16–18, pl. 22.

[145] The closest Old Kingdom parallels are some private sarcophagi decorated with palace-facade patterns that are not restricted to the bottom ledge, but cover the whole exterior of the box, see Anna Maria Donadoni Roveri, *I sarcofagi egizi dalle origini alla fine dell'Antico Regno* (Rome, 1969), nos. B 15, 22, 32–33, 35–36, 40, 47.

[146] Petrie (*Lahun* II, p. 17, pl. 57) states, "In the tomb was a great quantity of Twelfth Dynasty pottery, mostly sherds. . . . The type of pot was almost entirely the common form like 67 x4." This type of flat-base beaker jar belongs to a group of model deposit pottery that cannot be dated to a particular reign, see Allen, "Queens' Ware," pp. 39–48.

[147] Petrie, *Lahun* II, pls. 6d, 7.

[148] Schwab dates the sarcophagus of tomb 621 to the time of Amenemhat III ("Sarkophage," p. 267, no. 84).

According to Brunton's observations, tomb 621 does not seem to have been used for a burial: "Along the passage we also found the fragments of a black syenite statue (back of wig), and a scrap of headdress in diorite. The whole of the debris in the burial chambers was most minutely searched, but not a vestige of wood or bone, not a bead, not a scrap of alabaster, no resin, not even the usual gold foil, rewarded our efforts. . . ."[149]

The Pyramid Temple

(figs. 14–18a; pls. 31–37, 39, 144A, 153–61; plan IIA–B)

Bibliography: Vyse, *Gizeh*, p. 59, fig. 8; De Morgan, *Dahchour* I, pp. 51, 77, figs. 111–12, 183–90, fig. on p. 47, pl. 12

THE EXCAVATION

(pls. 31–37)

Perring apparently worked on the east side of the pyramid and discovered several blocks with "hieratic inscriptions, and hieroglyphics sculptured in relief," including a fragment with the cartouche of Senwosret III. He also reports that "two fragments adorned with stars on a blue ground, had apparently formed part of a coved ceiling." The present excavation has found similar fragments, which show that a ceiling, probably of the offering hall, was indeed vaulted (pl. 36A).

In 1894 De Morgan dug a large east-west trench near the center of the east side of the pyramid; its location could still be recognized in the U-shaped section of sandy debris in the area. His excavation uncovered "fragments informes" of the pyramid temple, fragments with fine relief, stelae(?), and sculpture in the round. Three relief fragments with the cartouches of Senwosret III were published by De Morgan.[150] Also found in the area, as well as farther north, were parts of large, simple (plain round?) limestone columns, some with Ramesside graffiti, which De Morgan concluded were intended to be reused in Memphis. No measurements of the columns are given, but one column drum is visible in a photograph;[151] comparison with the workman behind suggests it had a diameter of about 1.80–2.00 m. As the pyramid temple could not have included columns of that size,[152] De Morgan probably uncovered millstones fabricated from wall or paving blocks of the destroyed monument.[153]

In 1907, Alexandre Barsanti announced his intention to conduct excavations the following summer in the area east of the pyramid, where he expected to find important remains of the pyramid temple;[154] that project was apparently never carried out.

In 1992 we cut a north-south trench in the area in front of the pyramid temple; 2–2.8 m below the surface we reached the 2.61 m wide brick subfoundation of the stone inner enclosure wall (p. 24). A great number of fragments from the relief decoration of the temple were found in the debris above these bricks. In 1993 work in the area was resumed on a larger scale, and the brick subfoundation of the pyramid temple itself was discovered west of the remains of the inner enclosure wall, 2.5–3.5 m below the debris, and at a level of 44.26–44.31 m above NN. In 1994 the debris covering the southwest corner of the foundation was removed. By the end of the 1996 season, about 85% of the surface of the temple's brick subfoundation had been cleaned. At the southwest corner a small area of the transition between temple and pyramid subfoundation was uncovered. The center and the north sections of the west end of De Morgan's trench were excavated during the 2000 season.[155] The excavation of the actual temple area did not result in the recovery of all surviving relief fragments. Many more were spread over large, mostly previously unexcavated areas of destruction debris north, east, and south of the temple. During the 1994, 1996, 1998, and 1999 seasons we cleaned a large area south and southeast of the temple and discovered thousands of additional fragments of wall decoration and architectural elements. The remaining western parts of the pyramid temple area were explored during the 2000 season, when a trench was dug from the temple's southwest to its northwest corner. In order to reach that area, debris and fallen casing blocks that covered the pyramid slope and extended down into the brick subfoundation had to be cleared from the east side of the pyramid.

For a summary of the pyramid temple decoration, see pages 133–42.

THE FOUNDATIONS

(figs. 14–16; pls. 31, 37)

The brick subfoundation was laid into a pit dug into the *gebel* at depths of about 0.60 m in the east and 1.10 m in the west (figs. 14–16). The subfoundation was three courses thick (44 cm), with bricks laid irregularly and rather carelessly in undulating rows. No care seems to have been accorded even the lines of the edges of the building, which suggests that measuring cords were not used.

There is a distinct separation between the temple subfoundation, which was thinner, added later, and rose 5–10 cm higher, and that of the pyramid. The pyramid's brick subfoundation was thicker and was set in a deeper trench. The foundations clearly show that the pyramid was built first and without any provisions for an attachment to the pyramid temple. Nothing of the pyramid temple's stone foundation is preserved.

The difference in level between the surface of the pyramid temple's subfoundation (about 44.26–44.31 m above NN) and the top of the pavement level of the temple (estimated at 45.65 m above NN) was probably 1.34–1.49 m, appropriate for one or two courses of foundation blocks and the actual pavement slabs, which would have been elevated about 15 cm above the surrounding desert surface. The foundation of the temple is 55 cm deeper than that of the nearby stone inner

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[149] Petrie, *Lahun* II, pl. 21, no. 11.

[150] De Morgan, *Dahchour* I, figs. 111–12 and p. 47 upper. The fragment on figure 111 was reexcavated by us in the ruins of De Morgan's house. The fragment with the text on page 47 was also found in De Morgan's house. The text derives from a relief from the offering hall depicting inscribed tables carrying vessels (see here p. 141). De Morgan's drawing of the inscription actually combines the texts from two different tables.

[151] De Morgan, *Dahchour* II, pl. 12.

[152] The total height of such a column would have been 12–14 m. Only a column half that size would have fit in the square antechamber, see here pp. 49–50.

[153] Examples of Middle Kingdom wall blocks reworked into rough column shafts were found near the south drain (see here p. 91; pl. 122a–b).

[154] Alexandre Barsanti, "Quelques recherches à Dahchour," *ASAE* 8 (1907): p. 192.

[155] The whole temple area has now been cleaned, see pl. 31.

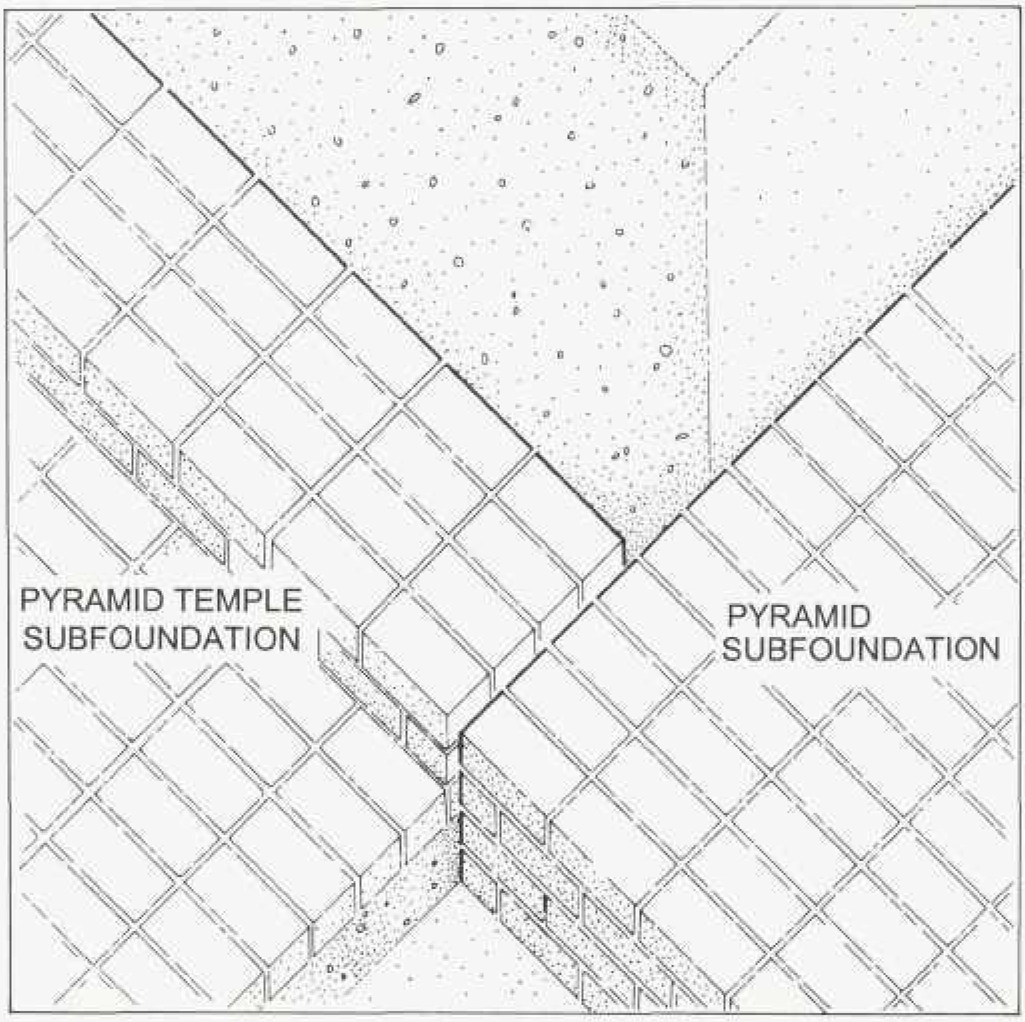

Fig. 14. Juncture of the subfoundations of the pyramid and pyramid temple at the southwest corner of the pyramid temple. No scale. Drawing D.A.

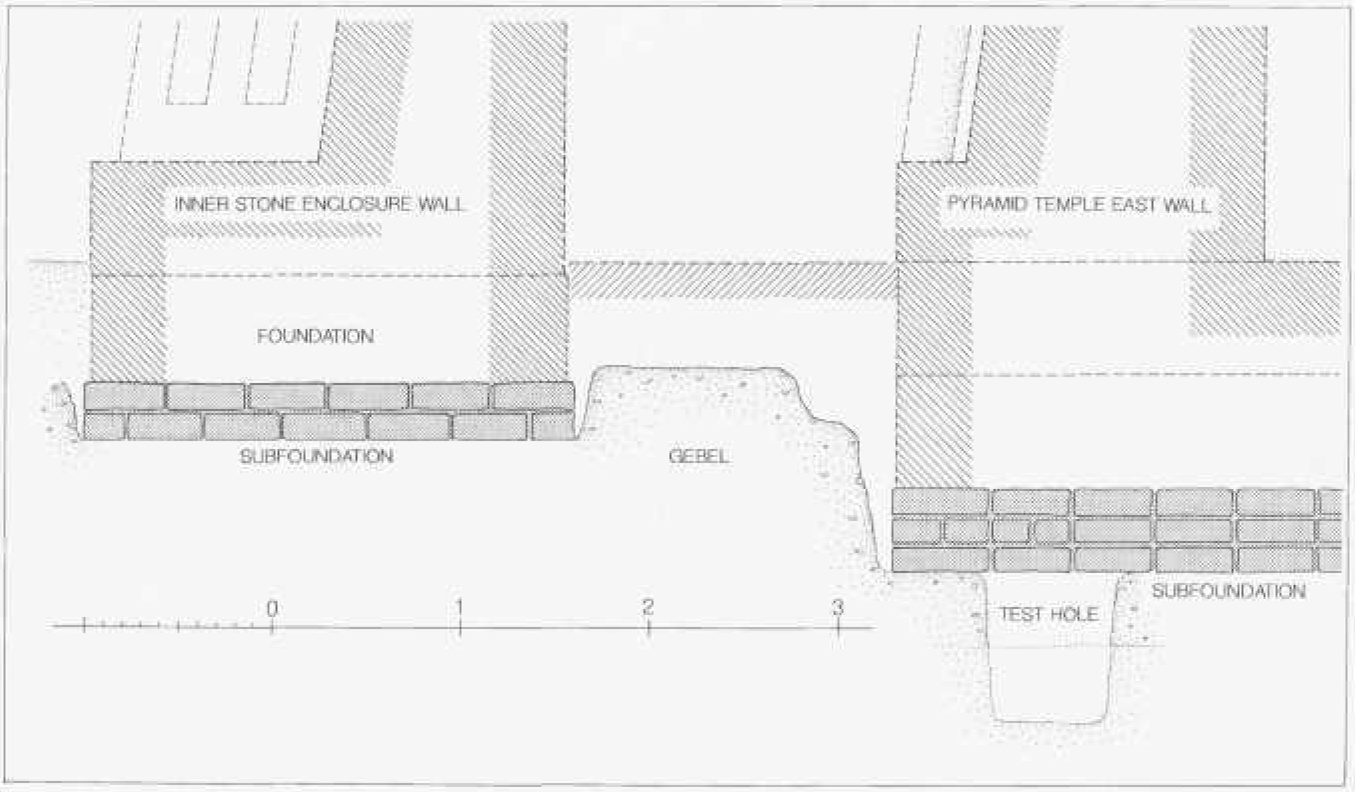

Fig. 15. East-west section through the foundations of the inner enclosure wall and the pyramid temple, facing south. Scale 1:40. Drawing D.A.

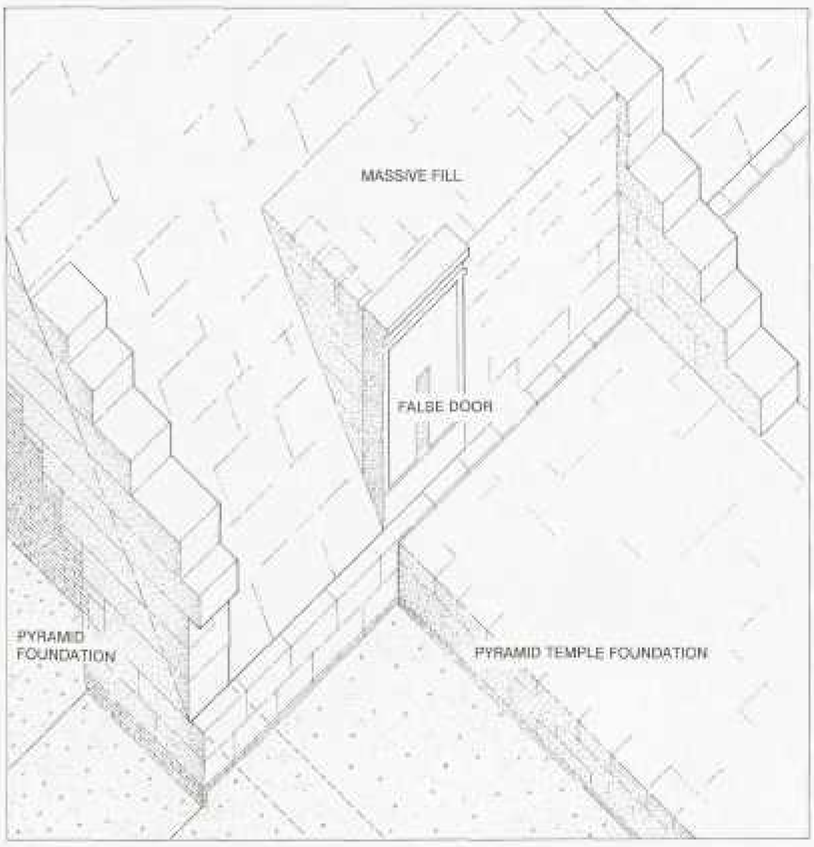

Fig. 16. Reconstruction drawing of the possible location of the false door in the pyramid temple. No scale. Drawing D.A.

enclosure wall, since it had to bear a heavier load (fig. 15). It is difficult to understand why no foundation was laid for a stone pavement in the 1.68 m wide interval between the foundation of the enclosure wall and the pyramid temple. Was this important passage, which may have been the access route to the entrance of the temple, left unpaved?

Our search for a foundation deposit under the northeast and northwest corners of the temple foundation was unsuccessful. The subfoundation bricks rest upon a 30–40 cm thick stratum of gravel and sand, with clean sand below. We could not ascertain whether this sand was natural. In order to prevent additional damage to the bricks, we abandoned the pit after 1.25 m.

The stratification of the debris overlying the temple's subfoundation was best seen along the side of the pyramid. Directly above the brick subfoundation, a thick layer of limestone debris indicates that the blocks of the temple were completely removed and the area filled with chips from the stonecutting and breakage that occurred during the destruction process. A thin layer of sand and chips suggests a pause in the demolition. Above is limestone debris from the pyramid casing, followed by masses of broken brick and sand from the pyramid core. This stratification confirms the expected sequence of events, namely that the pyramid temple was demolished before the pyramid casing was dismantled. In the center of the temple's west side, De Morgan's deep V-shaped section reaches the brick subfoundation.

THE PLAN

(figs. 16–17; pl. 31)

The pyramid temple's undifferentiated brick subfoundation suggests the overall dimensions, but provides no clue as to the arrangement of the chambers and doors. The following remarks should be considered tentative, as firmer conclusions can be reached only after the study of the temple's wall decoration has been concluded.

In order to understand the problems of the layout of the pyramid temple one has first to consider how the western end of the structure was formed and its transition to the eastern slope of the pyramid. For religious reasons, the royal false door had to be in direct contact with the pyramid. This requirement was generally met by erecting the false door in front of the base line of the pyramid casing. Since the pyramid foundation protruded beyond the base line of the casing, the false door stood on top of the protruding pyramid foundation (fig. 16). This arrangement had considerable consequences. First, the west wall of the pyramid temple also fully or partially rested on top of the pyramid foundation, while the side walls of the temple were carried by the separate temple foundation. The discrepancy between pyramid and temple foundations may frequently have produced cracks in the temple walls. Another result was that the west ends of the temple's side walls were not vertical but instead followed the inclination of the pyramid casing. The triangular space between the pyramid temple and the pyramid casing was left unused and filled with massive masonry. In queens' pyramids, the offering chapel and the false door intruded slightly into the pyramid casing, thus avoiding the useless triangular space between pyramid and chapel. The distinct separation line between the pyramid and temple foundations of Senwosret III discussed above, as well as other observations, suggest that his builders followed general practices and did not place the west end of the temple within the pyramid. However, we cannot determine the location of the pyramid base line. Was it one or three cubits behind the edge of the foundation platform (p. 27; fig. 5)? In the first case, the western edge of the offering hall would—depending on the thickness of the false door—have been more or less identical with the separation line between the subfoundation of the pyramid and the pyramid temple. In the second case the western edge of the offering hall would have been up to two cubits west of this separation line.

The main entrance to the temple was on either the east or the south side, but it is difficult to choose between these possibilities (fig. 17). If an entrance existed in the east facade of the temple, its approach would have been through the very narrow passage between the temple's east side and the inner enclosure wall.[156] In this case one might expect that there were gates in the outer and inner enclosure walls that allowed a direct approach from the east (as shown on pls. 153a, 154). The subfoundations of both walls have been excavated, but their poor state of preservation does not allow a conclusion as to whether or not there were gates. The brick subfoundation of the stone inner enclosure wall does not change in front of the pyramid temple, and the brick subfoundation of the outer enclosure wall was so badly damaged by robbers and grave diggers that any traces of a doorsill have disappeared. If the main entrance of the temple was located on the south side, we would have three options: west end, center, or east end. Again, firmer conclusions must await the completion of the study of the wall decoration.

In the interim, the following general remarks on the temple's layout may be useful. Whereas the pyramid temples of the

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[156] The distance between the foundations of the pyramid temple and the inner enclosure wall is 1.68 m.

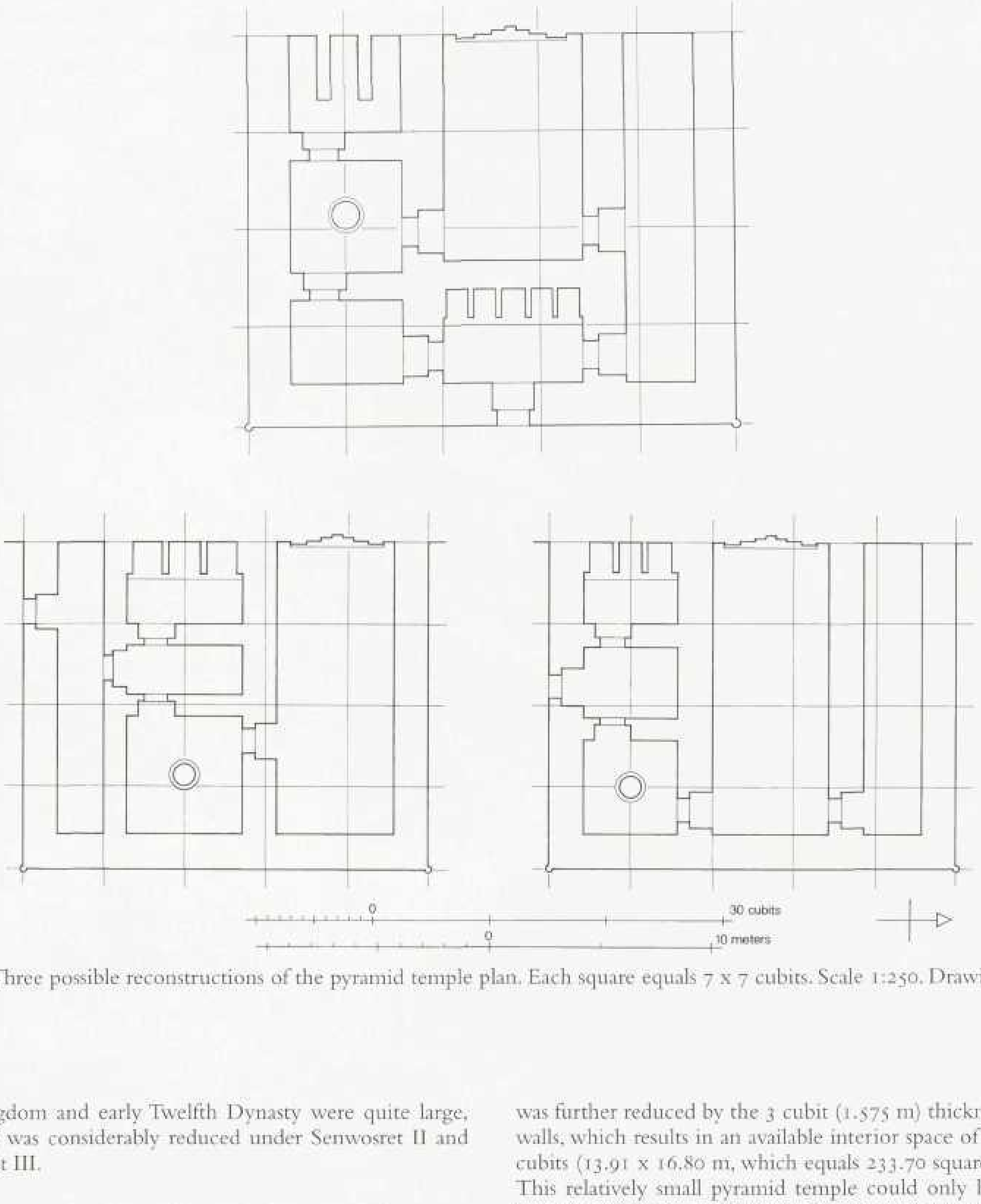

Fig. 17. Three possible reconstructions of the pyramid temple plan. Each square equals 7 x 7 cubits. Scale 1:250. Drawings D.A.

Old Kingdom and early Twelfth Dynasty were quite large, their size was considerably reduced under Senwosret II and Senwosret III.

APPROXIMATE DIMENSIONS OF PYRAMID TEMPLES

	North-south	*East-west*
Pepi II[157]	55 m	94 m
Senwosret I[158]	45 m	86 m
Amenemhat II[159]	under 85 m	under 100 m
Senwosret II[160]	21 m	15 m
Senwosret III	18 m	15 m
Amenemhat III (Dahshur)[161]	26 m	48 m

The subfoundation platform of Senwosret III's monument measures 18.50–18.95 m north-south and 14.8 m east-west. The corresponding cubit dimensions would be 35 x 28 (18.37 x 14.70 m), suggesting a ratio of 5 x 4 squares, each measuring 7 x 7 cubits. One may assume that this grid played a part in the layout of the temple plan. The usable interior area was further reduced by the 3 cubit (1.575 m) thickness of the walls, which results in an available interior space of 26.5 x 32 cubits (13.91 x 16.80 m, which equals 233.70 square meters). This relatively small pyramid temple could only have contained those rooms and installations deemed essential for the cult. The following rooms seem to have existed.

Square Antechamber

The existence of a square antechamber is evident from a large number of relief fragments depicting the typical motif of processing deities. No remains were found of a central pillar or column, an element used to support the roof of other square antechambers.[162] The column, and the architrave it supported, would have been made of granite. The room may have been so small that a central support was not required, though the space available in the temple could have accommodated a square antechamber with the traditional dimensions of 10 x 10 cubits (5.25 x 5.25 m).[163] It is also possible that the column and architrave were removed in their entirety, leaving no fragments in the area.

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[157] Jéquier, *Pepi II/3*, pl. 1.

[158] Arnold, *Senwosret I*, vol. 1, plan 2.

[159] De Morgan, *Dahchour* II, pl. 2 (unexcavated).

[160] Petrie, *Lahun* II, pl. 8 (very few traces).

[161] Arnold, *Amenemhet III*, pl. 36 (hypothetical).

[162] From Niuserre to Senwosret I, see Arnold, *Senwosret I*, vol. 1, p. 47.

Traditionally, the square antechamber is located south of the southeast corner of the offering hall. The ritual path through the temple led from the square antechamber directly into the offering hall, but upon entering the offering hall, the visitor was required to turn 90°. It is possible, however, that the square antechamber was placed farther to the west (fig. 17, top), and that an entrance room was located in the southeast corner. In this case, the main temple door could have been on either the south or the east side.

Offering Hall

The existence of an offering hall is to be expected and its inclusion in the temple is substantiated by the remains of a vaulted ceiling decorated with stars and relief fragments depicting offerings, offering bearers, and an offering list (see the reconstructed section on fig. 18a). The west wall of royal offering halls is usually formed by a huge granite false door. A large number of granite fragments were indeed excavated in the temple's center. Definitive fragments with the recessed surface typical of false doors are lacking. The existence of a false door and its location may also be suggested by a tunnel dug by tomb robbers in the center of the pyramid temple's west side under the stone foundation of the pyramid casing. One may assume that the thieves dug the tunnel because of a conspicuous false door that seemed to promise buried treasures.

The offering hall could have reached the standard width of 10 cubits (5.25 m, see below), but there was not enough space to accommodate the 30 cubit length (15.75 m) that seems to have been usual in the offering halls of Old Kingdom pyramid temples.[164] The depth of Senwosret III's offering hall could not have exceeded 25 cubits (13.125 m) and may even have been shorter (fig. 17, top). The height of the offering hall has not been determined, but continued study of the relief decoration may yield an estimate of this dimension. The reconstruction drawing on figure 18a uses Old Kingdom parallels.[165] The suggested exterior height of the offering hall is 14 cubits (7.35 m) and the interior ceiling height 12 cubits (6.30 m). This would accommodate seven courses of 12 palm high (90 cm) wall blocks; a complete block of this height is preserved. The corbeled vault of the offering hall may have reached 13 cubits (6.625 m).

A large group of fragments certainly originate from the vaulted ceiling of the offering hall (pl. 36A). They indicate that the roof was composed of two or three corbeled courses that were hollowed out from the underside. From the curve of the fragments, the radius of the circle can be calculated at about 3.94 m, which would span a room 5.25 m wide. This arched, corbel ceiling is the oldest known in Egypt. Eighteenth Dynasty examples of corbeled vaults are found in the temple of Hatshepsut at Deir el-Bahari (sanctuary of Amun and south offering hall).[166]

The vault sprang from a horizontal torus set on top of the side walls of the offering hall; several torus fragments show that above the torus there was no cornice,[167] but rather the spring of the vaulted ceiling. The 11–12 cm thick torus was decorated with the usual black bands raised above a pinkish background. Below the torus, the top of a *kheker*-frieze is preserved in raised relief, confirming that the block comes from the temple's interior. The offering hall is the only room from which it could have originated.[168]

Additional Rooms

All of these configurations leave space for additional rooms along the north, east, and south sides, though the nature and size of the chamber(s) remain uncertain. Recovered relief fragments indicate the presence of ritual scenes, such as the purification of the pharaoh, that do not belong to the iconography of either the square antechamber or the offering hall.[169] One can therefore assume that the temple contained a chamber decorated with large-scale ritual scenes depicting the king interacting with deities. One would also expect a chamber with at least three or five niches for statues of the king, and fragments of black granite statuary have been recovered. The statue shrines could have either adjoined the pyramid or been on the east side of the temple. However, the location east of the offering hall would have considerably reduced the length of the hall. One fragment of a limestone cavetto cornice with horizontal and vertical tori may have been part of the facade of a statue niche (pl. 36D). In addition, a magazine for storing ritual equipment and other material would have been a necessity. However, such a room would probably not have been decorated and would have vanished without a trace.

Fragments of an alabaster offering table that would have been expected to stand in an open court were also found. However, the available space is insufficient for even a miniature court.

THE CORNER AND ROOF ARTICULATION

(fig. 18a; pls. 32–34A–D, 153–55; plan IIA–B)

In order to obtain square building blocks, the stone robbers chopped off protruding horizontal and vertical tori and

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[163] Arnold, *Senwosret I*, vol. 1, pp. 46–47.

[164] Arnold, *Senwosret I*, vol. 1, list p. 57.

[165] Jéquier calculated a height of 6.10 m for the offering hall of Pepi II at the impost of its vault and 7.10 m at its apex (Jéquier, *Pepi II/2*, p. 54). The interior height of the vestibule of Pepi II was 6.30 m (Jéquier, *Pepi II/3*, pp. 19–20). See the critical comment in G. Goyon, "Un nouveau type de colonne égyptienne dans le temple de la pyramide de Pépi I à Saqqarah," *SAK* 14 (1987): p. 104.

[166] See Arnold, *Building*, pp. 186–89, figs. 4.122–23. In contrast, the vaults in Old Kingdom temples consisted of two opposite rows of upright slabs that met in the center and were cut into an arch from below (see Lauer, *Téti*, pp. 12–15, figs. 1–3, pl. 22).

[167] As in the rock tombs of Amarna, see, for example, N. de G. Davies, *The Rock Tombs of El Amarna*, vol. 5, Archaeological Survey of Egypt Seventeenth Memoir (London, 1908), pls. 8, 20.

[168] A later example of an interior torus is found in the south offering hall of the temple of Hatshepsut at Deir el-Bahari. Here the walls are topped by a torus that supports not a cavetto cornice but, in defiance of Egyptian conventions, a *kheker*-frieze (unpublished). For other examples of interior torus elements, see N. de G. Davies, *The Rock Tombs of El Amarna*, vol. 5, Archaeological Survey of Egypt Seventeenth Memoir (London, 1908), pls. 7–8, 20, 24; Dieter Arnold, *Das Grab des Jnj-jtj.f: Die Architektur*, Archäologische Veröffentlichungen, vol. 4 (Mainz, 1971), p. 19, fig. 2.

[169] See here pp. 137–39.

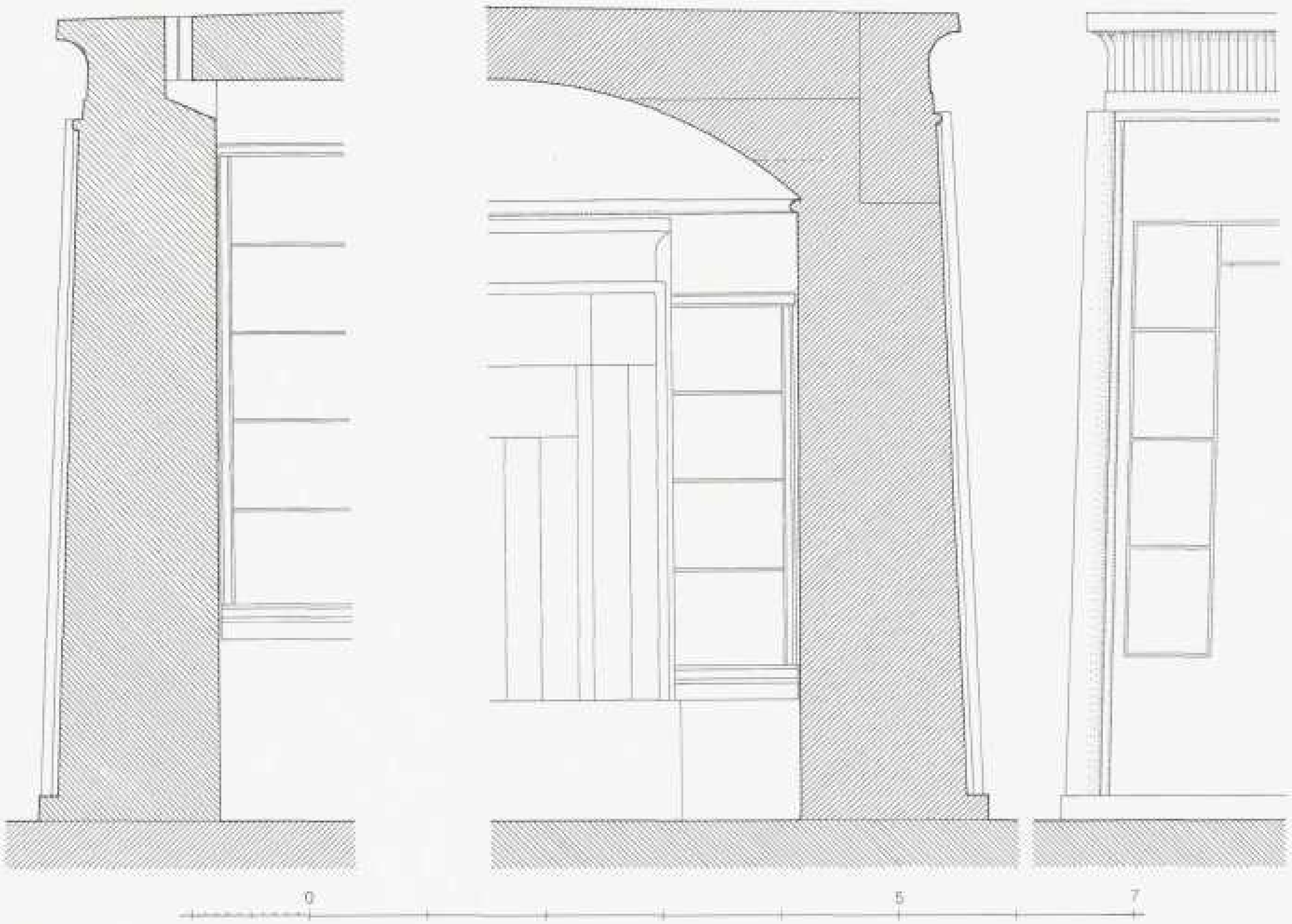

Fig. 18a. Preliminary reconstructions of the pyramid temple walls. Left: Section through the east end of the south wall into the temple interior. Center: Section through the north wall into the offering hall. Right: Elevation of the south end of the east side of the exterior wall. Scale 1:60. Drawings D.A.

cavetto cornice moldings. Numerous fragments of these elements have therefore survived, though no complete block is preserved that would permit us to establish the total height of the entablature. A reconstruction using two large fragments, which do not directly join each other, suggests that the total height of the entablature was 82.5 cm or 11 palms (pl. 33A–B).

It is clear from the varying dimensions of the recovered fragments that several formats of the torus/cavetto cornice must have been used in different parts of the temple. The largest cavetto cornice certainly crowned the top of the exterior walls, while the largest vertical torus articulated the outer corners of the building.

Six large and many smaller fragments belonged to the huge, vertical corner torus, which was flanked on either side by smaller tori (pl. 34A–D). The central torus had a diameter of about 29 cm near the ground, narrowing to 26 cm at the top. Fragments show that parts of the tori had the usual raised relief bands and that others were left undecorated and perhaps unfinished. The small side tori, which were undecorated, have a diameter of 6.7–7.5 cm and probably did not narrow at the top. The temple required vertical tori at the northeast and southeast corners.

One small fragment found near the northeast corner of the pyramid temple clearly shows that the large central torus ended at the top of the wall and did not continue as a horizontal element. On both sides it joined a horizontal torus 9.7 cm thick that was also banded, unpainted, and covered by a patina. The two smaller vertical tori ended below the horizontal torus. Surprisingly, the horizontal torus did not lie directly below the cavetto cornice, many fragments of which have been found. Instead, the torus supported a 13 cm high horizontal ledge, from which the cavetto leaves emerged. The 7.3–8.0 cm wide cavetto cornice leaves have fairly flat surfaces and are separated by V-shaped incisions. The upper ledge of the cavetto cornice was 11.6–14.0 cm high. The cavetto cornice leaves continued the batter of the wall and curved outward only at the top. No fragment preserves the total height of the cavetto cornice, and we cannot determine the degree to which its top curved.[170]

At least the northeast and southeast corners of the temple required vertical corner tori but there is reason to believe that the southwest and northwest corners also had similar articulation. During the 2000 season, we found two fragments of a large torus flanked by a small one near the northwest corner of the temple. On both fragments, the torus was inclined inward only 87–89° (north-south), which corresponds to the batter of the (north) exterior temple wall. There is no inclination in the east-west direction. Since the tori of the northeast

[170] Unfortunately, the ratio between the upper ledge and the cavetto cornice molding fluctuates so widely during the Middle Kingdom that a parallel cannot be used to suggest a reconstruction of the missing cavetto cornice. The ratios vary between 1/2.4 and 1/10!

and southeast corners are inclined in both directions, one has to conclude that the new fragments belonged to a torus at the northwest corner (plan IIA–B).

The reconstruction of the exact shape of the northwest torus is problematic because the fragments are heavily damaged. Their section seems to indicate that the torus did not surround a corner that encompassed three-quarters of a circle, but instead consisted of a half column protruding from the wall. The shape of the fragments also implies that a small torus was placed only to the east of the large one. These features suggest that the torus marked the outer northwest corner of the temple (pls. 153a, 155). The northwest torus, and presumably one in the southwest corner, would have visually excluded the above-mentioned triangular wall space at the western edge of the side walls and stressed the rectangular shape of the two temple walls. The triangular wall plane would have been set back slightly behind the surface of the temple wall. It is probable that the cavetto cornice also ended above the western corner tori. Such an articulation of the southwest and northwest corners of the pyramid temple is not known from other monuments. The reason for applying this unusual feature at the temple of Senwosret III is obvious. Without such a clear vertical demarcation at the northwest and southwest corners, the cavetto cornice and the exterior decoration of the temple walls (see p. 137) would have joined the pyramid casing in a complicated and awkward manner.

Smaller-scale fragments from the cult chapels of queens' pyramids 2, 3, and 8 also point to the same triple corner torus and the uncommon separation ledge between the horizontal torus and the cavetto cornice (fig. 20D; pls. 51C, 52B–C, 142d). A comparison of the fragments from the queens' chapels with those of the royal pyramid temple suggests a proportion of 7:11.

Parallels for this unusual corner and roof articulation are found in the *sed*-festival court (southwest chapel of the west series) and on temple T in the Third Dynasty Djoser complex, suggesting that this monument was the prototype that inspired the builders of Senwosret III's complex. Following Lauer's reconstruction of Djoser's structures,[171] the central torus would stop at roof level, and the secondary tori would turn and become horizontal. Lauer reconstructed three more block courses on top of the horizontal torus. The first course consists of a horizontal element. The two following courses begin 3–4 cm behind the outer edge and then angle outward, creating a sort of prototype for an actual cavetto cornice.[172] In the temple of Senwosret III, the entablature did not exactly copy the Third Dynasty model, but instead included an Egyptian cavetto cornice of the later type. An unpublished fragment of a corner torus found at the pyramid temple of Amenemhat III at Dahshur suggests a similar corner articulation. The fragment preserves the flat upper end of a huge corner torus from which a smaller horizontal torus branches off. Again the combination of the vertical and horizontal tori suggests a cavetto that emerged above a horizontal ledge. However, there were no smaller side tori.

Another example of this rare torus/cavetto cornice arrangement is found much later on kiosklike buildings on the island of the *Maru-Aton* at Amarna.[173] Fragments found here suggest that pillars were adorned with a corner torus and an adjacent pattern of vertical stalks or "reed shafts" that seemed to belong to long-stalked lotus flowers. Apparently the upper end of the corner torus and the plant arrangement of the horizontal torus were preserved. The excavators created a hypothetical reconstruction, which suggests that a cavetto cornice decorated with three lotus flowers protruded above the horizontal torus. Secondary stalks with flowers, which did not reach the horizontal torus, covered the pillar surfaces.

THE ROOF

(pls. 32, 144A, 153a)

The modest dimensions of the pyramid temple make it improbable that its roof would have been extensively terraced and suggest that the entire surface was one large plane.

Evidence for this feature is provided by some fragments of torus/cavetto cornice blocks that preserve part of the adjoining roof. On one piece, the roof surface is flush with that of the entablature. Another block has a slight downward step with a shallow depression in front, which would have been parallel to the edge of the roof and probably served to collect rainwater and guide it into a waterspout (pl. 32B). A third fragment preserves the upper surface of a light shaft that is flush with the top of the cavetto cornice (pl. 32A, D). All three fragments support the theory that the roof was a flat stone platform bordered by a cavetto cornice.

According to the reconstruction of the temple roof on plate 153a, the cavetto cornice on the north and south sides of the temple ended about 5.50 m from the pyramid. The reconstruction also assumes that the cavetto cornice continued from the southwest to the northwest corner of the temple, separating the actual temple roof from the fill masonry west of it. Such a cavetto cornice would have effectively protected the temple roof from rainwater flowing down the east side of the pyramid. However, there is no evidence for this arrangement, and the west side of the temple roof could have been left open.

One must expect that the roof sloped from back to front, so that the water drained into water spouts along the front (east) edge of the roof. Fragments of waterspouts have not been recovered.[174]

For aesthetic reasons, the entablature surrounding the roof slabs remained horizontal. However, we found a cavetto block that included a noticeable dip for draining rainwater in the top surface. The dip ran parallel to the edge of the cavetto, suggesting that there must have been a west-east inclination of at least the drain groove (pl. 153a).

The joints of the roof slabs were protected from rainwater by fillets with a T-shaped section, which were inserted into grooves cut along the joints (pl. 144A). Since the fillets had curved tops, they protruded slightly from the roof surface and formed a system of low barriers and shallow basins. In order to drain the rainwater from one basin to the next and finally to the spouts at the roof edge, systematically organized outlets for the water would have been necessary. As this technique was quite new, one wonders whether altered climatic conditions required improved methods for draining rainwater.[175] This system of simple fillets was refined when the south temple was roofed (pl. 144B–D).[176]

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[171] Jean-Philippe Lauer, *La pyramide à degrés: L'architecture* (Cairo, 1936), vol. 1, pp. 139–40, fig. 134, vol. 2, pls. 58, 66, no. 1 (southwest chapel of the *sed*-festival court), pp. 151–52, figs. 157–61, pl. 70 (temple T).

[172] The earliest examples are the huge granite cavetto cornices in the valley and Harmachis temples of Khafre at Giza, see Herbert Ricke, *Der Harmachistempel des Chefren in Giseh*, Beiträge zur ägyptischen Bauforschung und Altertumskunde, vol. 10 (Wiesbaden, 1970), pp. 24, 29, figs. 14, 16, plans 2–3.

[173] T. Eric Peet and C. Leonard Woolley, *The City of Akhenaten*, vol. 1 (London, 1923), p. 121, figs. 21–22, pl. 30.

[174] One would expect that two spouts with lion heads were inserted into the front cavetto cornice. Similar ones were found in the pyramid complex of Senwosret I at Lisht (Arnold, *Senwosret I*, vol. 1, p. 78, fig. 31, pls. 57, 101) and at Karnak (Pierre Lacau and Henri Chevrier, *Une chapelle de Sésostris Ier à Karnak* [Cairo, 1969], pls. 3, 4, 6).

THE INTERIOR ELEMENTS

Doors

(pls. 35, 157d, 161)

The front of a Middle Kingdom stone doorway is articulated by a slightly protruding frame and architrave. The inside of the jamb is often curved, while the back of the jamb has the so-called flat stop faces. Finally, the thickness, or reveal, is recessed in order to accommodate a wood door. The doorsill and lintel are often made of granite.

Numerous fragments of limestone doorframes were found in the pyramid temple area. Pieces from the reveal are easily recognized by the painted pattern of alternating green and yellow stripes, which apparently represent reed mats and must be derived from the perishable building materials used in early Egyptian constructions. The stop face for the door is painted yellow. We found several fragments of curved, approximately 50 cm wide doorframes that were covered with long rows of drill holes, suggesting that they had been adorned with gilded copper sheets (pl. 35C). This costly decoration would probably have embellished the entrance into the offering hall, the principal room of the temple.[177]

A lintel block may have been part of the main entrance (pp. 136–37; pls. 35A, 157d). On the front of the block, most of the left side of the raised facade inscription is preserved; below is a deep groove for a long patch stone. From below, the drill hole for the upper door socket (pivot) is visible in the corner of the reveal. The frame was 47.5 cm thick.

Another large fragment was part of a door in the offering hall (pp. 141–42; pl. 161C). On the vertical front of the huge block are depicted two registers with groups of inscribed vessels sitting on long tables. On the underside, a small part of the upper right corner of the doorway is preserved, with the alternating green and yellow bands of the reveal, along with ceiling stars from the soffit. Traditionally, the main door into the offering hall is on its south side, and frequently an additional door connects the offering hall to the storerooms in the north. Since this north exit is normally flanked by a frame and our block has a reveal, it must originate from the south door. According to preserved fragments, the pyramid temple contained at least two more interior doors. Lacking any means of identification, it is at present impossible to assign the fragments to a specific location (p. 142).

For the possibility that one door had a granite lintel and frame, see below and page 54, note 183.

Light and Air Shafts

(pls. 32, 36B–C, F)

In 1993, we found two fragments of flat ceiling blocks with star decoration on the undersides. After the stars were sculpted and painted, vertical light shafts were cut through the blocks. Shallow grooves were cut around the opening of the 3 cm wide shafts on the side with the ceiling stars, probably to prevent rainwater from seeping over the decoration. The presence of light shafts confirms the existence of closed interior rooms with flat ceilings. The fabrication of the shafts *after* the completion of the ceiling decoration shows that at the time it was carved, little light could have entered the temple, explaining the poor quality of the stars.[178] Since it is hard to believe that the high-quality wall relief was also executed with poor light, one could suggest that the walls were decorated before all roofing slabs were lowered into position.[179]

In 1993, the upper part of a huge roof block, which preserves traces of the cavetto cornice, was found in the southeast area of the pyramid temple (pl. 32A, D). Part of a vertical light shaft surrounded by a shallow ledge of the roof surface is preserved 91.5 cm behind the front edge; the other section of the shaft would have been on an adjoining ceiling block, which is not preserved. In general, light shafts are positioned in the center of the ceiling, but this one must have been very close to one of the temple's outer walls (pl. 32D). The placement of this block and the adjoining roof slab probably prevented the light from entering the room vertically, and the lower section of the shaft would have been angled. The builders must have had a reason for choosing this solution rather than opening a vertical light shaft further inside the roof.

Another fragment of the cavetto cornice, found south of the center of the temple in square R/29, has a 15 x 14 + x cm wide opening, only 22 cm behind the cavetto cornice. The opening seems too small and the location quite awkward for a light shaft, but there does not seem to be another explanation for the feature.

In the pyramid temple area (square S/30cd), a fragment that is decorated with a block border on one side and ceiling stars on an adjoining face (pl. 36F) was found. Parts of the stars along the edge were cut off. The combination of ceiling stars and a block border suggests that the piece originates from the lintel of a window, a wall niche, or a door, with the stars covering the underside of the lintel and the block border framing the top of the opening.

The Granite False Door and Other Granite Elements

Approximately one and a half cubic meters of fragmentary red granite has been recovered in and around the pyramid temple. The pieces were mainly concentrated on the north side and the center of the west side of the temple, in the area where the front half of the offering hall probably stood (p. 50). About 80 percent of the fragments are rough, while the rest have a worked surface, generally with one flat face, but sometimes with two faces at right angles to each other. A few fragments are inscribed with sunken hieroglyphs painted green; the Horus name of the king and epithets of Horus can be identified. Most conspicuous are parts of the torus, which because of their awkward shape were entirely chipped off. The longest single piece is 41.5 cm. The diameter of the torus was 11 cm. The torus was covered with rough charcoal scribbles, probably made in connection with the demolition, since the preserved lines do not make sense.

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[175] Felix Arnold has observed that the open center court of houses was roofed from the Thirteenth Dynasty on ("A Study of Egyptian Domestic Buildings," *Varia Aegyptiaca* 5 [1989]: pp. 80–81).

[176] Grooves and fillets were quite common on New Kingdom temple roofs, see Somers Clarke and Reginald Engelbach, *Ancient Egyptian Masonry* (London, 1930), p. 155, figs. 175–76.

[177] The drill holes are 1.6–1.9 cm deep and 1 cm wide. For gilded doorframes, see Ludwig Borchardt, *Allerhand Kleinigkeiten* (Leipzig, 1933), pp. 3–4, pl. 2; Uvo Hölscher, *The Mortuary Temple of Ramses III*, pt. 2, vol. 4 of *The Excavation of Medinet Habu*, University of Chicago Oriental Institute Publications, vol. 55 (Chicago, 1951), pp. 41–42, figs. 53–54.

[178] Another factor in the poor quality may have been the awkward position of the sculptors, who were probably apprentices.

[179] A suggestion made by Adela Oppenheim and confirmed by observations in the crypts of the Hathor Temple at Dendera, see P. Zignani, "Monolithisme et élasticité dans la construction égyptienne," *BIFAO* 96 (1996): p. 468, fig. 13.

A few pieces of the cavetto cornice remain, showing that the leaves were 6.2–7.0 cm wide and the upper ledge was 11.5 cm high. The complete height of the curved part of the cavetto cornice is unknown. Since the ledge and the torus are roughly one-fourth of the total height of the entablature, one can estimate that it was between 28 and 46 cm tall. A few fragments have remains of a winged disk, rendered in sunk relief and painted green, that must have been below the entablature.

One would naturally expect that all the fragments originate from the same monument, namely, the false door that probably occupied the west wall of the offering hall. Very few false doors from Middle Kingdom pyramid temples are preserved. Both a limestone and a granite false door were found at the pyramid of Amenemhat I,[180] and an alabaster stela was discovered in the entrance chapel of Senwosret I.[181] However, false doors are normally not decorated with a winged disk.[182] The fragments with the winged disk might therefore originate from a naos or from a door lintel.[183]

Interior Torus/Cavetto Cornice Elements

(pl. 36D–E)

Aside from the large outer torus/cavetto cornice entablature, the presence of three groups of limestone torus and cavetto cornice fragments with different dimensions suggests that these elements were placed in other, probably interior, parts of the temple.

1. A group of about eight torus fragments with band decoration and patinated surfaces might be connected with the statue shrines (pl. 36D–E). In Old Kingdom pyramid temples, the three or five parallel statue niches had their facades framed by tori and crowned with cavetto cornices. Similar decoration is found on the facades of some Middle Kingdom statue shrines.[184]

Diam.	*Distance between bands*	*W. of bands*
7.7–8.0 cm	10.4–12.0 cm	1.7–2.0 cm

2. Numerous fragments of a medium-sized torus with unpainted, patinated bands originate from an undetermined location.

Diam.	*Distance between bands*	*W. of bands*
9.5–10.2 cm	15.5–16.5 cm	2.7–3.5 cm

3. Numerous fragments of a horizontal interior torus with black bands on a pink background probably belonged to the offering hall (p. 50).

Diam.	*Distance between bands*	*W. of bands*
11–12 cm	18 cm	3.2–3.5 cm

The King's North Chapel

(fig. 18b)

Bibliography: Vyse, *Gizeh*, pp. 57, 59–60; *LD*, text, vol. 1, p. 205; for a general discussion of north chapels see Peter Jánosi, "Bemerkungen zu den Nordkapellen des Alten Reiches," *SAK* 22 (1995): pp. 145–68; Labrousse, *L'architecture*, pp. 20–23, 45–49, 167–68, pls. 16–18, 75

From Vyse's publication of Perring's excavations we learn that his 10 m wide north-south trench reached the north chapel of Senwosret III.

> . . . The north front [of the pyramid] has had the addition of a temple or portico, adorned with sculpture and hieroglyphics, like those said to be attached to the Pyramids in Ethiopia. The casing and the portico had, however, been entirely removed, and their former existence was only ascertained by the operations carried on by Mr. Perring, in September and October 1839, in order to discover the entrance of the Pyramid. . . .
>
> . . . The building was carried down much lower than Mr. Perring expected; he accordingly enlarged the excavation, and he found a wall of rubble work, which appeared to be a protection to an entrance. On the 24th [September 1839] he arrived at the base of the building, 30 feet [9.14 m] below the surface of the ground. He found a pavement composed of large stones, and towards the north a hollow about 2 feet 8 inches [81.3 cm] wide, which had been stopped up by a block, and had in some degree the appearance of an entrance to an inclined passage. The foundation was remarkable. The stony surface of the desert had been made level by a layer of fine sand, confined on all sides by a stone platform, 14 feet 6 inches [4.42 m] wide, and 2 feet 9 inches [83.82 cm] thick, which supported the external casing. . . . The blocks composing the platform were laid upon four courses of bricks.[185]

In April 1843, Lepsius was still able to recognize some remains of the exposed chapel, "Auf der Nordseite will er [Perring] die Reste eines Portikus gefunden haben; auch wir haben vorgebaute Mauern gesehen."[186]

De Morgan[187] assumed that Perring mistook one of the north pyramids, most probably pyramid 2 (called mastaba 2 by De Morgan), for a "portico." However, our 1997 excavation showed that Perring's infamous trench did not reach pyramid 2.

Unfortunately, no plan or sketch was made of the structure, but on Perring's section (see here fig. 18b) one can identify a brick platform extending about 8.20 m north of the pyramid foundation. After a gap of about 3.90 m, there is a separate brick construction 5 m long, perhaps marking the subfoundation of the inner enclosure wall. The north edge of the separate subfoundation is shown about 17.20 m north of the

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[180] For the inscribed limestone false door (Egyptian Museum, Cairo JdE 40485), see A. M. Lansing, "The Egyptian Expedition II," *BMMA* 2 (1907): pp. 115–16, fig. 4. For the huge, granite false door (Egyptian Museum, Cairo JdE 45086), see A. C. Mace, "The Egyptian Expedition III: The Pyramid of Amenemhat," *BMMA* 3 (1908): pp. 185–87, fig. 3. Both false doors had cavetto cornices.

[181] Arnold, *Senwosret I*, vol. 1, p. 78. The stela had a cavetto cornice.

[182] A winged disk crowns the round-topped granite stela of Senwosret III, which was found in the Mentuhotep temple at Deir el-Bahari, see Édouard Naville, *The XIth Dynasty Temple at Deir el-Bahari*, pt. 1, Twenty-eighth Memoir of the Egypt Exploration Fund (London, 1907), p. 58, pl. 24.

[183] In that case, the granite frame could only have been at the front of the temple's main door. However, a limestone sill seems to originate from this entrance (see above and pp. 136–37).

[184] For example, the pyramid temple of Pepi II (Jéquier, *Pepi II*/2, pl. 34) or the temple of Senwosret III at Qasr el-Sagha (Dieter Arnold and Dorothea Arnold, *Der Tempel Qasr el-Sagha* [Mainz, 1979], pls. 4–5, 10b).

[185] Vyse, *Gizeh*, p. 61.

[186] *LD*, text, vol. 1, p. 205.

[187] De Morgan, *Dahchour* I, p. 3.

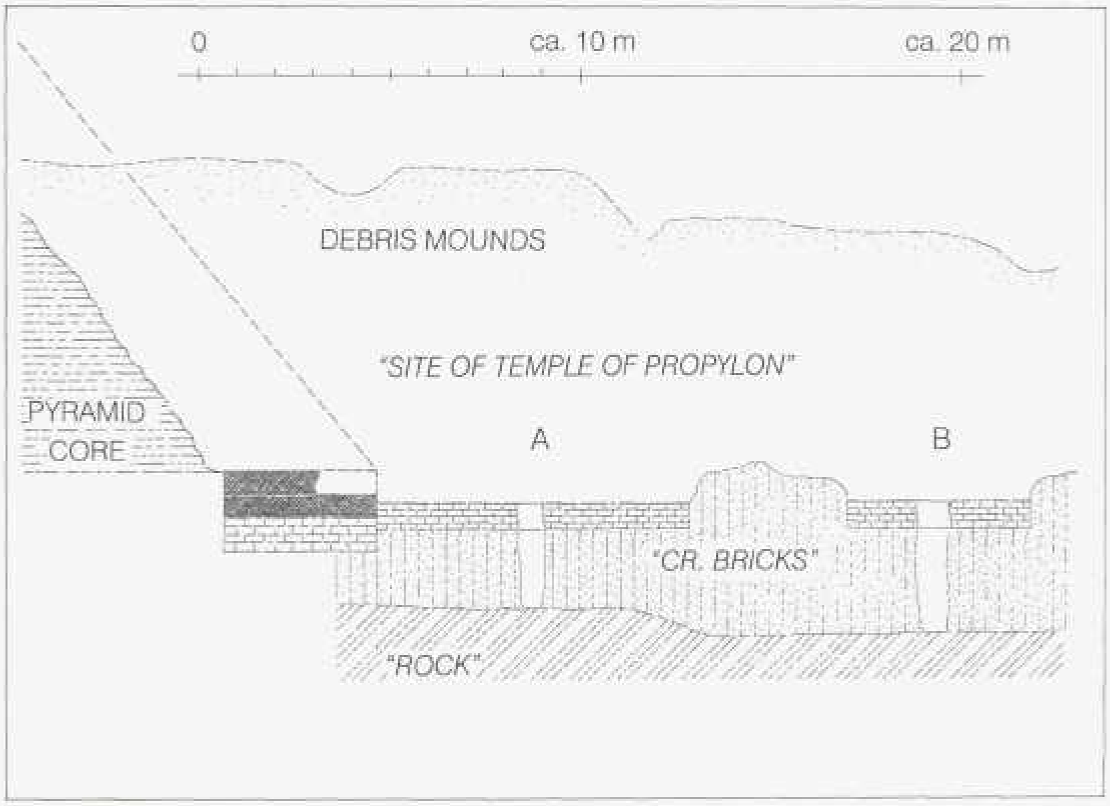

Fig. 18b. South-north section through the pyramid and north chapel of Senwosret III. Revised drawing of Vyse, *Gizeh*, pl. between pp. 60 and 61. Vyse's labels in italics. *A*) north chapel (?). *B*) stone inner enclosure wall (?). Scale 1:200. Drawing D.A.

foot of the pyramid, a figure that is close to our calculation of about 13.125 m (p. 20). The length of the north chapel might have been 15 cubits (7.875 m), and the width about 10 cubits (5.25 m), a large building compared to the north chapel of Senwosret I.[188]

Vyse gives a description of the remains of the corbeled roof of the chapel and discusses its importance for architectural history:

> . . . the building had been attempted to the eastward, and, as has been already mentioned, that there had been a portico, apparently connected by a stone platform with the casing of the Pyramid, and covered in by a roof, formed by successive projections of the courses of the blocks. These courses had met at the summit in the center, and their angles had been cut away, so as to constitute a curved line. . . .

The construction of a corbeled roof, apparently carved into a vault, would be the first example of this type of ceiling in the north chapel of a pyramid. But, as will be seen below (p. 62), assigning the roof blocks to the king's north chapel is debatable, and the vault may instead have belonged to the cult chapel of pyramid 2 (Nefret-henut) located west of Perring's trench.

Vyse found a group of about fifty bodies buried in the area, some in wood or clay coffins; ten appeared to have been mummified and the rest were shrouded. Below, he discovered several "slabs containing colored and well-executed sculptures, which recorded the dedication of an offering, and part of a cartouche."[189] These fragments are probably identical to some of his figures on the plate opposite his page 63: figures 5–6 depicting an offering list, figure 8 depicting parts of the royal cartouche, and figure 10 depicting piled offerings correspond well to the description.

During our excavation along the west side of pyramid 3 (Itakayet) in 1993 (square M/38), we found a part of a triple corner torus, similar to but smaller in size than that of the pyramid temple.[190] Also found were a few fragments of the leaves of a cavetto cornice, which were of the small, 7.5–7.8 cm wide type. These fragments may have belonged either to the cult chapel at the east side of pyramid 2 (Nefret-henut) or to the north chapel of the king's pyramid. If they originate from the latter, they might suggest that the north chapel had the same unusual torus/cavetto cornice decoration as the pyramid temple and the cult chapels of pyramids 3 and 8.[191] Despite Perring's destructive work, there are undoubtedly more remains or fragments of the north chapel buried in the debris on the north side of the king's pyramid.

The Queens' Shaft and Chamber

(fig. 19; pls. 67–73)

On March 2, 1894, De Morgan discovered a gallery along the north side of the pyramid that contained twelve interconnected tomb chambers for princesses and queens, four of which are under pyramids 1 to 4. He first entered the gallery through what he believed was a robbers' shaft (called the secondary shaft by the present excavators) in the northwest corner of the inner court, which led into tomb 1. From inside the gallery, he calculated the position of the original entrance near the northeast corner of the pyramid, and opened the main shaft after the unbelievably short period of two days.

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[188] At ground level, the chapel was 8 cubits long (4.20 m) and 10 cubits wide (5.25 m), see Arnold, *Senwosret I*, vol. 1, pl. 99.

[189] Vyse, *Gizeh*, p. 60.

[190] This was found in the stone debris above the subfoundation of the stone inner enclosure wall.

[191] For a standard cavetto cornice/torus from the north chapel of the pyramid of Senwosret I, see Arnold, *Senwosret I*, vol. 1, pp. 77–78, pls. 99–101. The north chapel of the pyramid of Amenemhat III at Hawara must have been unusually large (ibid., fig. 37). According to the excavation of Lepsius in 1843, the foundation pit was 18.70 m long, 10.25 m wide at the rear, and 7.50 m wide at the front part (*LD*, text, vol. 2, p. 26).

The original shaft, the entrance passage, and the adjoining limestone-lined, T-shaped chamber show evidence of major alterations. From several observations it is clear that the north gallery consists of three distinct units, planned and executed at different times: 1) a T-shaped chamber of unknown function; 2) a series of tombs branching off an upper gallery that begins above the roof of the T-shaped chamber; and 3) two galleries at the same level as and on either side of the T-shaped chamber (subsidiary queens' gallery). The name of Amenemhat III appears several times on items of jewelry found in the tombs, and pottery dating to the second half of this king's reign was found in conjunction with the burials. A control note dated to year 30 of an unnamed king was also discovered (p. 117). These chronological indicators suggest that some tombs were built only during a coregency of Senwosret III and his son Amenemhat III, and some burials might even be later. Only the original structure is considered here. For the two additions, see pages 58–59.

THE SHAFT

(pls. 67–68, 70, 71a–c)

The main entrance (queens') shaft, which is 1.58 x 3.18 m and 12.70 m deep,[192] is situated in the northeast corner of the inner court (square S/36). The shaft originally was well cut, but it was damaged during the movement of materials associated with the subsequent alterations to the underground apartments. Since at least fourteen individuals were buried over a relatively long period of time, the question remains as to whether the shaft was reexcavated and refilled after each burial or whether it was left open, thus revealing its location to potential thieves.[193]

During the 1990 season we reexcavated the shaft. The task of locating it proved very laborious, as its mouth lay deep below the original court surface in a huge funnel of sand. The fill of the shaft was, of course, debris that had fallen in after De Morgan's 1895 excavation. In the southwest corner of the bottom of the shaft, we found the tunnel cut by De Morgan during his search for the royal tomb in the early summer of 1894 (p. 32).[194] The original brick lining of the shaft was in such poor condition that in 1998 we had to reinforce it with modern bricks.

THE SLOPING PASSAGE

(pls. 67–68, 70–71)

The lower part of the north wall of the shaft widens into a rough, irregular cavity. At its lower end begins the stone-lined, sloping corridor that leads into a limestone chamber and the two branches of the subsidiary queens' gallery. Above the corridor entrance is another roughly cut opening, which provides access to the upper corridor. The opening in the original north wall of the shaft suggests that there was a second building phase, which resulted in major changes to the passage construction.

The original, stone-lined passage is 1.22 m wide and slopes northward at a 16° angle into a limestone chamber; floor, walls, and the 1.87–1.92 m high ceiling of the passage were constructed of large limestone blocks. In the upper section of the passage, the ceiling beams are missing; they were probably removed during the renovation of the corridor (pls. 68, 70, 71a–b). The lower section of the passage is covered by five ceiling slabs and an enormous block (pl. 68, no. 1). The underside of block 1 was carved into seven semicircular roll moldings that imitate tree-trunk ceiling beams. Similar ceiling decoration is found in the adjacent limestone chamber (see below). Since the decorated section of the ceiling stops about 10 cm from the corridor's west wall, one can conclude that the forms were carved when the passage was narrower, and that the wall face was originally aligned with the edge of the tree-trunk decoration (pl. 71c). The west wall of the passage, therefore, must have been cut back, certainly when the eight huge stone sarcophagi of the subsidiary queens' gallery were placed in their tombs. Even with the increased width of 1.22 m, only 5 cm remained on each side to maneuver the 1.11 m wide sarcophagi, requiring extreme precision from the riggers. A rough, flat ledge along both side walls under the ceiling may have been left unfinished during the alterations. At the lower end, the passage leads into a huge, limestone-lined chamber. The original doorframes of the chamber's entrance were later removed in order to move in the sarcophagi.

The arrangement of blocks above the chamber entrance is notable. The five ceiling blocks covering the center part of the passage (pls. 68, 70, 71a–c) are smaller, thinner, lack the tree-trunk pattern, and were added after the remodeling of the passage. Only the last block (1), which has the tree-trunk pattern, belongs to the passage's original ceiling. Blocks 2 and 3 were stored on top of block 1 when the corridor roof was remodeled. Block 2 is carved with three tree trunks, which now face upward, and block 3 may have the same decoration on its underside. The original sequence of the blocks must have been 1–2–3. The dressing of the corridor therefore began at the bottom and progressed upward, but was abandoned before it reached the mouth of the passage. When the upper corridor and tombs 1–4 were added, the corridor ceiling was remodeled in the following steps.

1. All corridor ceiling blocks were removed, except block 1; blocks 2 and 3 were stored above block 1. During the process of lifting the ceiling blocks, the upper edges of the corridor's side walls were heavily damaged.

2. The rock cave above the corridor ceiling was heightened in order to create a negotiable horizontal passage to the west (the upper corridor).

3. The upper corridor was cut to the west of the heightened cave. The corner leading into the passage was curved, in order to allow large building blocks and sarcophagi to be turned from south-north to east-west.

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[192] The measurement was taken from the original surface level of the court at 45.50 m above NN.

[193] The clearance of a shaft of this size now takes about ten to fourteen days. In antiquity, longer hours, men working in shifts, or tough supervision might have resulted in faster progress.

[194] We could still stumble through the half-buried tunnels to reach the funerary apartments of the king. Most of De Morgan's wood supports remain in place and are well preserved. However, some tunnels, used by De Morgan to deposit the debris from later mining operations, are no longer accessible.

4. Smaller, lighter blocks were used to roof the lower half of the sloping corridor. One of these blocks has a control note with a year 30 at the south top edge, suggesting that the renovation was undertaken quite late in the reign of an unnamed king.[195] Blocks 2 and 3 were left in their storage place above block 1. The broken upper parts of the corridor's walls were repaired with plaster.

The outer section of the new ceiling was either never completed or later removed, perhaps when large sarcophagi were introduced. A pair of huge, square putlog holes in the side walls of the sloping passage probably held a heavy beam used to lower the sarcophagi.[196]

THE T-SHAPED CHAMBER

(fig. 19; pls. 67–70, 72, 73c)

Bibliography: Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1990–1991," *Orientalia* 61 (1992): p. 251, fig. 28

The sloping passage opens into a chamber 2.10 m wide, 3.34 m long, and 2.25 m high, floored and lined with beautifully dressed limestone slabs. The ceiling has a spectacular decoration with nineteen stone semicircular roll moldings that imitate tree-trunk ceiling beams; they are 16.5 cm in diameter and run east-west. Three beams were carved into each of the ceiling slabs, except for the last blocks in the north and south, which have only two. The upper surfaces of the upright standing ceiling blocks include another unusual feature, which is visible only from the cave above (fig. 19). Each of the 1.05 m high ceiling blocks was carved in such a way that a ⊥-shaped section was produced and the weight of the blocks was lessened. This technique is common in later Greek architecture,[197] but was rarely used in Egypt.[198]

Doors that open to the east and west at the north end of each of the side walls now lead into the subsidiary queens' gallery. Tool marks and repair stones indicate that the doors were subsequently enlarged, apparently when the tombs were dug, so that the west door is now 1.12 m wide and the east door 1.54 m wide. The widening of the doors was carried out rather hastily and roughly, probably when a sarcophagus had to be moved through the door and got stuck in the narrow opening. Clearly recognizable traces show that the doors were originally smaller. The doors may have opened into niches or small side chambers, which were probably unlined, so that a T-shaped plan was created by the limestone chamber and the two subsidiary spaces. The shape of the subsidiary queens' gallery rules out the possibility of large side chambers. Since the original purpose of the installation remains unknown, we have designated it the T-shaped chamber after the configuration of the space.

The north wall of the limestone chamber is interrupted by a nichelike, nearly square opening, 1.19 m wide and 1.55 m high. The addition of this opening also must have been an afterthought, because normally doors were constructed rather than cut into an existing wall. According to De Morgan's plan, the door opens into a small, irregular tunnel, which soon turns to the east. We could not survey the tunnel, as the area had collapsed and had to be closed with a brick wall. De Morgan and the present excavators first assumed that the opening and the

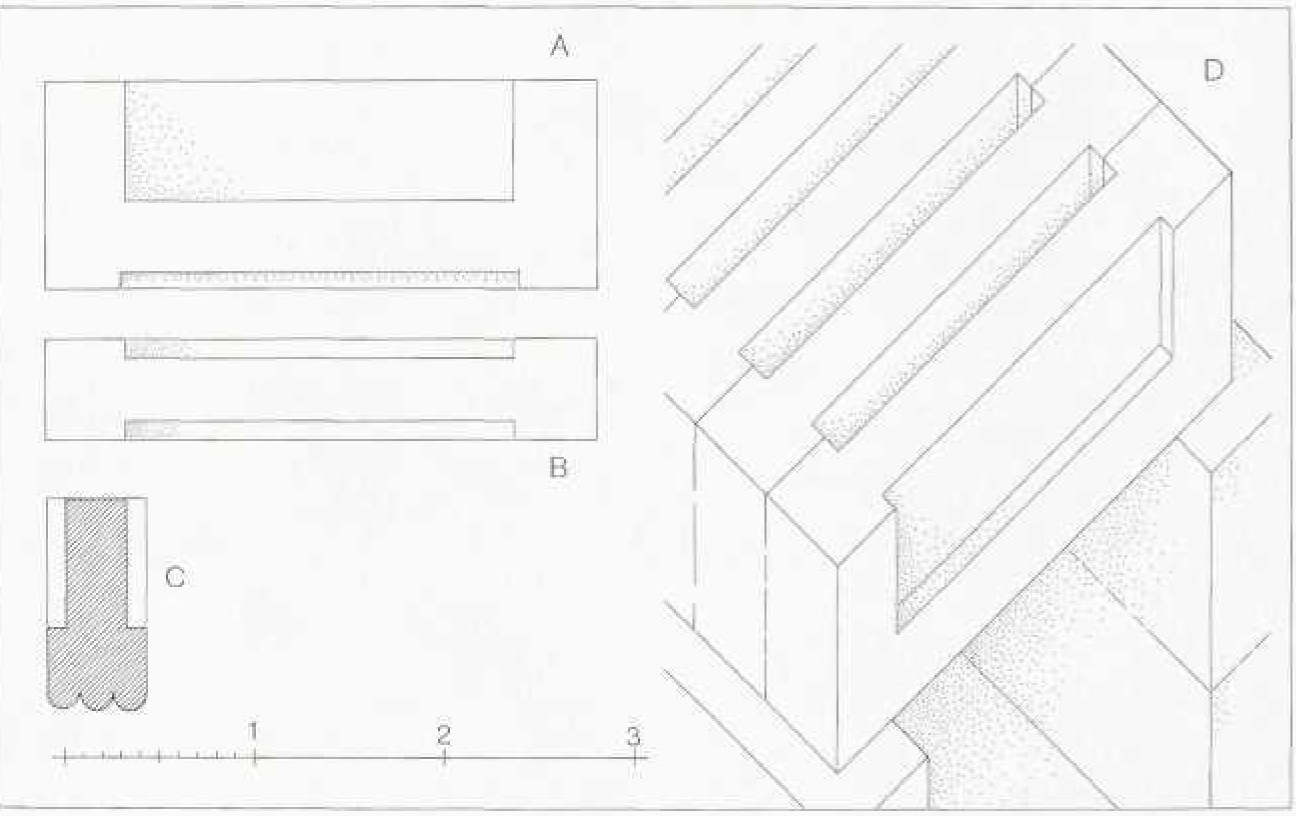

Fig. 19. The roof blocks over the entrance chamber of the T-shaped chamber. *A)* Elevation. *B)* Top view. *C)* Section. *D)* Isometric view of blocks in position above chamber walls. Scale 1:40. Drawings D.A.

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[195] Felix Arnold, "New Evidence for the Length of the Reign of Senwosret III?" *GM* 129 (1992): pp. 27–31.

[196] These are similar to other such putlog holes, see Arnold, *Building*, pp. 73–74, figs. 3.20, 3.23, 5.11.

[197] For Greek examples, see J. J. Coulton, *Greek Architects at Work* (Ithaca, New York, 1977), pp. 145–47, figs. 63–64. For Roman examples, see H. Thür, "Ausgehöhlte römische Bauglieder," in *Bautechnik der Antike*, Diskussionen zur Archäologischen Bauforschung, vol. 5 (Mainz, 1991), pp. 238–45.

[198] For another ancient Egyptian example, see here p. 60. An L-shaped lintel was observed in the pyramid of Amenemhat III at Dahshur, in a door leading into the antechamber of an anonymous queen (unpublished).

tunnel were the work of tomb robbers. However, the cutting methods and the parallel constructions found in the king's tomb and in the tomb of Queen Weret II convinced us that the project was intentionally carried out by royal builders. That blocks were used to close the opening in ancient times is clearly shown by mortar marks.

THE ORIGINAL PROJECT

The preceding observations clearly demonstrate that the T-shaped chamber was distinct in form and purpose, and that it was not originally intended to be the antechamber to the subsidiary queens' gallery. The high quality of the stonework and the placement of the entrance shaft within the pyramid court suggest that it was a significant structure.

The most striking feature is the tree-trunk pattern on the corridor and chamber ceilings, a decorative element that was developed during the Second and Third Dynasties and used in numerous Fourth to Sixth Dynasty private tombs.[199] The design was apparently rediscovered by Senwosret III's architects, who must have visited the Djoser complex at Saqqara.[200]

The closest contemporary parallel for the tree-trunk decoration appears in chamber C of Senwosret III's Abydos tomb (p. 44; fig. 13),[201] which has not only the same ceiling decoration but also the same arrangement of side chambers at each end of the long walls. One must suspect that the installations at Dahshur and Abydos originally had the same function. Both apparently had the appearance of self-contained, tomblike structures, and perhaps even had an empty sarcophagus in the center. The funerary significance of these T-shaped "cenotaphs" is accentuated by the later addition of the cavelike, curved corridors. The layout of the chambers clearly differs from that of contemporary royal crypts and more closely resembles the sarcophagus halls of New Kingdom royal tombs, which usually have four small side chambers.[202]

In reconstructing the sequence of events, one can even go a step further and speculate that the Dahshur T-shaped chamber became obsolete after the corresponding structure was built at Abydos, and it then became possible to use it as an access to the queens' gallery. One can further speculate that the Dahshur T-shaped chamber was the predecessor of the Abydos tomb, perhaps an early version of an Osiris tomb.

Since there are peculiar discrepancies between the T-shaped chamber and the other contemporary underground apartments at Dahshur, one might conclude that the T-shaped chamber was an older, perhaps early Old Kingdom structure, rediscovered and transformed by Senwosret III's builders. This fascinating hypothesis is mainly supported by the appearance of the tree-trunk pattern in the Djoser complex at Saqqara and several Old Kingdom tombs at Giza and Saqqara. Unfortunately, other unusual features such as the entrance from the south, the T-shaped plan, and the hollowed-out ceiling beams have no parallels in the Old Kingdom.

The Four North Pyramids

(pls. 38, 40–43)

The inner court of the complex included at least seven stone-cased brick pyramids that flanked the king's pyramid on the north and south sides;[203] for a variety of reasons, it appears that the two groups belong to different construction phases (pp. 116–17). All secondary pyramids have disappeared from the surface, but their foundations are still preserved under the accumulated sand and debris. The superstructures seem to have been flattened before De Morgan's time, and his observations regarding the shapes of the monuments, based on his methods of digging shallow, narrow trenches all over the site, are inaccurate. All seven structures have square ground plans. In addition, the discovery of casing blocks with angles of 60–63° confirms that the monuments were pyramids, and not mastabas, as De Morgan had stated. Two additional structures on the east side of the pyramid, which are designated as mastabas 5 and 6 on De Morgan's plan (p. 75), do not seem to exist. A trench dug during the 1994 season in the south part of the west outer court failed to produce any evidence of additional mastabas or pyramids.

While the base lengths of the pyramids can be reconstructed with some accuracy, the angles of the casing, and consequently the estimates of the heights, are more problematic. Complete and securely identifiable blocks of the pyramid casing are rare. Small fragments with sloping, patinated surfaces are commonly found and usually do originate from the casing, but it is not possible to measure them accurately. In addition, despite careful execution, fragments of the casing from each pyramid display slight inconsistencies. Since most of these inclination measurements fall into the range of 60–63°, two different estimates of the pyramids' heights and proportions are possible.

1. When seen in cross section, the pyramids could have had bases equal to their sloping sides, creating equilateral triangles (each angle would have been exactly 60°, which corresponds to the Egyptian ratio of 7 x 4 palms). Consequently, the total height can be calculated by multiplying half the base length by 1.75.

2. The heights of the pyramids could have also corresponded to the base lengths, producing a ratio between height and half base length of 2:1, or height and total base length of 1:1. For that proportion, the angle would have been 63°26'6", which would be expressed in Egyptian terms as 7 x 3½ palms.

It is difficult to determine which of the two possibilities is correct. The closeness to 60° of the measured casing blocks tends to support the first possibility. However, in similar cases,

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[199] El-Naggar, *Les voûtes*, vol. 1, pp. 323–24, vol. 2, pls. 398–400.

[200] Lauer, *Step Pyramid*, vol. 2 (Cairo, 1935), p. 56, pl. 21 (entrance staircase of step pyramid), p. 56, pl. 47 (room above sarcophagus chamber of south tomb, the so-called "chambre de manoeuvre"), p. 65, pl. 55 (entrance colonnade; painted red); J.-Ph. Lauer, *Histoire monumentale des pyramides d'Égypte* (Cairo, 1962), p. 158, fig. 49 ("maison du nord"), p. 149, fig. 39, pl. 24 (temple T); Ricke, *BemerkungenAR* I, pp. 92–93, figs. 27–28.

[201] *Abydos* III, p. 24, pl. 43[1]. The room is 2.5 x 9 m and 2.25 m high, considerably longer than the one at Dahshur. Unfortunately, Currelly published nothing of this splendid architecture but an inadequate plan and a brief description, which omits such details as the number and size of the blocks.

[202] The decoration of some side chambers in tombs of the Nineteenth and Twentieth Dynasties includes Osiris, the *djed*-pillar, the Book of the Cow, the 3rd division of the Book of the Gates, the 12th division of the Amduat, and the Fields of Iaru. Since three of these subjects were unknown in the Twelfth Dynasty, one may tentatively suggest that the two side chambers of our tombs may have had some relationship to Osiris and the *djed*-pillar.

[203] In order to be consistent, the structures are here referred to as queens' pyramids, although some belonged to women who bear only the title of princess, and one may have belonged to a man.

Labrousse and Lauer have preferred the 63° version.[204] The following list is based on a 1:1 ratio of height to base. For the exception of pyramid 4, see page 67.[205]

DIMENSIONS OF THE NINE SECONDARY PYRAMIDS

Pyramid	*Base*	*Angle measured*	*Estimated H.*
1	32 cubits (16.80 m)	unknown	unknown
2	32 cubits (16.80 m)	62.0–62.5°	16.80 m
3	32 cubits (16.80 m)	61–63°	16.80 m
4	32 cubits (16.80 m)	56–58°	13 m?
7	50 cubits (26.25 m)	[61°, 66°, probably 63°]	27.30 m
8	42 cubits (22.05 m)	61–63°	22.05 m
9	42 cubits (22.05 m)	60–61°	22.05 m

That the four north pyramids (1–4) were added to the original complex, perhaps at different times, is suggested by the narrowness of the court into which they were squeezed and by the use of a preexisting structure (the T-shaped chamber, pp. 57–58) for their entrance passage. The four pyramids served as superstructures for tombs 1–4, which are each connected to the east-west upper gallery under the monuments. Therefore, the pyramids and their underground apartments are not directly connected by individual shafts and passages. However, the layout indicates that a relationship was envisaged between the tombs and the east faces of the pyramids, probably because the cult chapels were located on this side. A control note on a roof block, which was removed and reset in the original descending corridor, suggests that the construction of the upper corridor and tombs 1–4 (and consequently of pyramids 1–4) may have started in year 30, quite late in the reign of Senwosret III, and probably after the completion of the rest of the pyramid complex.[206]

On the north side of the upper corridor, limestone gates open into four tombs of queens, princesses, or other high-ranking members of the royal family. All tombs follow more or less the same plan and are constructed on two levels. Behind the gates, on the upper level, vaulted chambers were cut from the *gebel* and paved with huge limestone slabs. It can be assumed that no further limestone lining was planned for these rooms, since stone ceilings would have required caves much higher and larger than the existing ones. The limestone pavements disguised 3.75 m high staircases that led down to the tombs' lower level, which corresponds to that of the T-shaped chamber and the subsidiary queens' tombs 5–12. On the lower level, short, horizontal passages lead to the canopic shrines in the east and then open into beautiful, vaulted limestone crypts with stone sarcophagi.[207] In the north walls of the crypts are unlined chambers, which in two tombs were used to house an additional sarcophagus. In the east walls of the crypts are small side rooms, designated as "treasuries," which also remained unlined.

THE EAST CHAPELS OF THE SECONDARY PYRAMIDS

(pls. 40–43, 49a–b, 50–54, 56a)

The brick subfoundations that extend in front of the centers of the east sides of pyramids 2, 3, 4, 8, and 9 suggest the presence of small cult chapels about 10 cubits wide and 8 cubits deep.[208] Architectural elements and relief fragments found around these brick subfoundations also point to the existence of chapels. The architectural pieces mainly consist of awkwardly shaped parts chiseled off by the stone robbers, such as the torus/cavetto cornice, and material that could not be reused, such as patch stones and fillets for the roof slabs.

Like the pyramid temple, the chapels were topped by an entablature consisting of a cavetto cornice, with ledges above and below, and a torus beneath the lower ledge (fig. 20; pls. 51C, E–F, 52B–C, 142d).

DIMENSIONS OF THE ENTABLATURE

	Measurements	*Calculated*
H. upper ledge	6.9–8.0 cm	4 fingers (7.5 cm)
H. cavetto leaves	31.5 cm	17 fingers (31.875 cm)
H. lower ledge	7.8 cm	4 fingers (7.5 cm)
H. horizontal torus	7.2 cm	4 fingers (7.5 cm)
Total H.	ca. 54.0 cm	29 fingers (54.375 cm)
W. cavetto leaves	4.0–4.8 cm	2 fingers (3.75 cm)
Diam. horizontal torus	5.4 cm	3 fingers (5.625 cm)

The wall corners were articulated with the same type of triple torus as the pyramid temple (fig. 18a; pls. 34A–D, 154). The central torus, 17–18 cm in diameter, was decorated with raised bands, while the 3.0–3.7 cm diameter side tori were plain. Fragments with curving surfaces originate from 40 cm thick doorframes. The roofs were again protected from rainwater by T-shaped fillets, the same method used for the complex's larger temples (pp. 52–53, 102–3).

Although the precise plan of the interior of the chapels can only be established after a thorough study of the numerous relief fragments, the following preliminary conclusions can be drawn. Assuming a wall thickness of 1½ cubits, the available interior space shrinks to only 6½ x 7 cubits (3.41 x 3.68 m), which is amazingly modest in comparison with the chapels of Middle Kingdom private tombs. Large sections of the tympana from the short walls of the offering chambers exist, and they indicate that the rooms were 3½ cubits wide (1.84 m). The rooms should have been oriented east-west, with false doors abutting the pyramid slope. The 6½ cubit length of the rooms (3.41 m) could have been slightly increased to the west if a section of the pyramid slope was removed or a bench with an offering table was placed against the pyramid slope. The ceilings consisted of shallow vaults decorated with yellow stars on a blue background. A small fragment of a granite torus from a false door was found at pyramid 8. The offering chamber walls were covered with the standard iconography appropriate to such rooms, which appear to have been the only decorated spaces in the chapels (pp. 145–46). Alabaster fragments found in and around the chapels of pyramids 1 and 3 (some inscribed) originate from offering tables. Pieces of quartzite and diorite were found in conjunction with the chapels of pyramids 2, 3, 8, and 9.

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[204] Jean-Philippe Lauer, *Le mystère des pyramides* (Paris, 1974), pp. 310, 342–43; idem, *Téti*, p. 37; Labrousse, *Ounas*, p. 55.

[205] The measurements are those of the base length of the actual pyramid, not of the foundation.

[206] See Felix Arnold, "New Evidence for the Length of the Reign of Senwosret III?" *GM* 129 (1992): pp. 27–31.

[207] Most of the sarcophagi of the Senwosret III complex are included in Schwab, "Sarkophage." However, I refrained from quoting this work in many instances because Schwab could not examine the original sarcophagi herself, but instead relied on De Morgan's sketchy information.

[208] Pyramids 8 and 9 have north chapels as well, see here pp. 76–77 and 83.

PYRAMID 1

(pls. 38, 80–82a–c, 99–104)

The Owner

De Morgan found fragments of a diorite statue in the burial chamber that gave the name and titles of the "*/// ḥ3tj-ʿ, ḫtmw-bjt, smr-wʿtj, ḫrp-ʿḥʿ, ḥrj-sšt3, ///, jmj-r pr-wr, Nj-sw-Mnṯw*," which translates as "count, seal-bearer of the king of Lower Egypt, unique companion, director of the palace, he who is privy to the secret, ///, overseer of the great house, Nesu-Monthu."[209] Since the other tombs in the north gallery for whom owners have been identified belonged to princesses and queens, Nesu-Monthu may have been the only male who was buried there. A date later than Senwosret III is suggested by the shape of the doorframes, which do not have the curve typically found in this king's reign (see also tomb 4, p. 68). Nesu-Monthu could also have been a high official who usurped an existing and perhaps unused tomb at the end of the Twelfth Dynasty. Remains of stone blocking from the entrance to the crypt suggest that either the original owner or a later intruder was buried here.

The Superstructure

The shape and size of the superstructure is purely hypothetical in De Morgan's publication because he observed (or excavated?) only irregular remains of the brick core. In 1992, we exposed parts of the brick core along the west side of the pyramid as far as the southwest corner. The remains consist of a brick subfoundation 2.40 m wide and two courses deep that originally carried the pyramid's stone casing, which may have been 4 cubits thick (2.10 m). All that remains of the stones is a thin layer of limestone chip.

An excavation trench that crossed the so-called Archaic shafts north of pyramid 1 also included the north edge of the brick subfoundation of the pyramid, about 2 m south of the original north outer enclosure wall. The 1997 search for the east subfoundation of the pyramid casing was inconclusive.

The north-south dimensions of the pyramid's brick subfoundation can be estimated to have been about 17.40 m. One might suggest that the overall length of the stone casing was 32 cubits (16.80 m) on each side, a figure that is comparable to the other three north pyramids. The east-west dimensions could not be verified.

The East Chapel

Our 1997 search for the east chapel was unsuccessful because the area has been destroyed by stone robbers and the pits dug for intrusive clay coffins. However, we did find a few small fragments of *kheker*-frieze, block border, and ceiling star decoration in painted raised relief, as well as a few tiny architectural fragments, all of which must have originated from a chapel. The findspot of another relief fragment near the southeast corner of pyramid 1 is noted by De Morgan.[210] These finds seem to confirm that an east chapel did once exist. Continued excavation should result in additional information; the area of a possible north chapel has not been explored.

The Underground Apartments

(pls. 80–82a–c, 99–104)

Bibliography: De Morgan, *Dahchour* I, p. 53

Tomb 1 was the westernmost and the last to be built of the four large burial apartments that are accessed from the upper corridor. Several details of its construction separate it from the other three tombs and emphasize its later date. The tomb suffered major damage, including the loss of half of the gate into the crypt, when the curved tunnel to the so-called secondary shaft (see below) was cut to the west.

A large gap between the doorframe of the upper gate and the *gebel* was closed with brickwork. Traces of mortar reveal that stone was probably used to block the upper gate. The upper chamber was carved from the *gebel* and had a shallow vault, which has partially collapsed. The floor was paved with limestone slabs that have been removed, except for the two last slabs in the north part of the chamber.

The brick foundation beneath the upper gate is well preserved. The entrance ramp ends with a steep drop into the lower passage. We could not clean the entire area because a huge sandstone boulder supported by limestone blocks rests at the bottom. The builders moved this boulder here when they excavated a side chamber in the west wall of the passage, which was probably intended to house the canopic chest belonging to a secondary burial (see below). The side chamber remained unfinished and its floor is at a higher level than that of the lower passage. Deep tool marks cover the rough walls.

In the east wall of the passage is the large canopic shrine that belongs to the main burial. The front of the canopic shrine is flush with the sloping lower passage and has a deep recess for the blocking, which mortar traces show had been put in place. The pavement of the shrine was destroyed by the robbers, exposing some roughly dressed foundation stones that sit on the bedrock. A circular hole was cut in the upper inner corner of the north wall, and a semicircular hole was cut in the south wall; both were smeared with mortar and certainly held a rod. The purpose of this arrangement is mysterious, since closing the canopic chest would not have required complicated equipment. Similar holes are found in the vault of the crypt (see below).[211] No fragments of a wood or stone chest were found.

The doorway to the burial chamber was not completely finished, and its surface was left rough. The front of the lintel has the outline of a tympanum, which repeats or continues the shape of the vault of the passage in front of it. The lintel has an L-shaped cross section, apparently made in order to reduce the weight of the stone by about one-third. The frames of the gate and all other doors in the tomb are flat, rather than curved. The doorway is still filled with a limestone blocking three courses high and four layers deep; the average block size is 23 x 33 x 50–70 cm, and the outer blocks are more smoothly dressed than those inside the wall.

The soffit of the doorway was demolished (except for the L-shaped southern lintel) when the 15 m long tunnel was dug; it leads from here to the secondary shaft located about 12 m west of tomb 1. This 1.20 x 2.10 m wide shaft was placed slightly west of the pyramid above tomb 1. The cutting of a true rectangular shaft was hampered by several huge boulders, which the miners could not remove. A 1.30 m wide and 1.70 m high passage begins at the southeast corner of the shaft and leads steeply down to the southeast; after 5 m it turns to the northeast. This second section was abandoned after 7 m, and a side branch, which reaches the above-mentioned roof slabs of the entrance of tomb 1 after 4.5 m, was cut to the east. De Morgan followed this access route when he entered the gallery in March 1894.

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[209] De Morgan, *Dahchour* I, p. 53, fig. 116. Two small, uninscribed fragments that probably belong to the same statue were found by our expedition. The present location of the fragments found by De Morgan is unknown.

[210] De Morgan, *Dahchour* I, plan between pp. 48 and 49.

[211] Similar holes in the side walls of the crypt of King Mentuhotep Nebhepetre at Deir el-Bahari suggest that a shroud was spread over horizontal rods; see Dieter Arnold, *Der Tempel des Königs Mentuhotep von Deir el-Bahari*, vol. 1, *Architektur und Deutung* (Mainz, 1974), p. 48, pls. 39–40.

The fact that the passage changes direction twice, slopes down 3.20 m from the bottom of the shaft to the tomb, and joins the tomb at the level of its roof suggests that the passage was cut from the outside by miners who were not certain about the location of the tomb. The obvious conclusion that they were tomb robbers is contradicted by the observation that the passage is wide, high, and well cut. Was it the work of those people who were responsible for other damage in the tomb, or did De Morgan's workers enlarge a much smaller robbers' tunnel?

The burial chamber is in disarray. Tomb robbers completely destroyed the quartzite sarcophagus, managing to split its thick bottom into four pieces; many of the quartzite fragments were also removed (see below). Some of the floor blocks were also lifted in the furious search for treasure. This frenzy was probably provoked by the unusual arrangement of the crypt's floor and foundation blocks (see below).

Even before the robbers' vandalism, much went wrong with this tomb. First, the chamber's foundation slabs extended only a few centimeters under the side walls, and thus could not carry the intended load. Instead, the walls were set on separate small cubic blocks (57–65 cm long), an unusual method of supporting a vaulted chamber. Under these blocks we saw, however, another course that protrudes about 30 cm in front of the west wall and sits in a depression in the *gebel*. The purpose of this extra course of blocks is unknown. The walls consist of three courses of blocks, while the vault is constructed of seven pairs of blocks linked in the center with V-shaped joints. Since not all the blocks are of the same width, some interlocking joints were made.

On the north wall, near the bases of the second and fifth vault blocks, two square sockets were neatly cut (pl. 101); there are no corresponding sockets in the opposite wall. This device is unique and may relate to the unusual circumstances under which the sarcophagus was delivered. For some reason, when the sarcophagus was brought in, the builders decided to undertake the difficult task of sinking it into the pavement, rather than resting it on the floor. They did not chisel out a rectangular pit, but instead removed all of the floor blocks. Since the pavement sat about 3 cm under the west and south walls of the crypt, they had to cut the wall bases back about 3 cm in order to release the blocks. After the sarcophagus was put in place, a new pavement of roughly dressed blocks was laid.

The north chamber was originally built as a small room with a shallow-vaulted ceiling, but workers later transformed it into a burial place by lining the lower half with limestone slabs in order to create a sarcophagus. The side walls consist of only two courses, which support the lid, so that from the front the room seems to be divided into two separate levels: the top of the original vaulted chamber above, and the sarcophagus below. When the entrance was finally closed, both openings were covered; three blocking stones remain in position.

The side chamber ("treasury") to the east of the crypt had a shallow vault, which has fallen. Behind the entrance are two 37 cm deep grooves, similar to those in the other tombs, intended to hold a wood(?) lintel. The door still has the lowest course of the 1.2 m thick blocking. The joints between the blocking and the door were filled with mortar. In addition to the blocking, a tiny fragment of gold foil provides another indication that a burial was placed in the tomb.

The Sarcophagus

(pls. 81c, 82a, 104)

The yellow quartzite sarcophagus in tomb 1 is completely destroyed. All four walls are broken off, and even the bottom is broken into four large pieces. Many fragments of the sarcophagus and lid were found in the sand fill of the secondary shaft and in the sand mounds surrounding its mouth. They may have been scattered by De Morgan's workmen when they cleared the curved tunnel and the crypt of tomb 1.[212]

The sarcophagus stood on four decorative battens. On the bottom of at least the east and north sides, it had a ledge decorated with a paneled facade that did not have the "window" pattern; there were three gates on the long side, and one on the short side. It cannot be determined if the other two sides were decorated. As was mentioned above, the sarcophagus was sunk 34.5 cm deep into the pavement, so that the lower part of the panel decoration was hidden. A fragment of the carved eye from the north end of the east side also survives, but there are no remains of an inscription. The curved lid had rectangular ends. There was no mortise-and-tenon connection between box and lid.

Dimensions:	L.	of box	270 cm
	W.	of box	104–104.5 cm
	Th.	of box	34.5 cm
	W.	of lid	109 cm
	H.	of lid	40 cm

PYRAMID 2

(QUEEN NEFRET-HENUT)

(fig. 20D; pls. 41, 42a–b, 77b–d, 78, 79c–d, 95–98, 105–6, 119, 142d)

The Owner

Pyramid 2 belonged to a Queen Nefret-henut. According to the inscription on her sarcophagus and relief fragments from the east chapel, she bore the important queenly titles "*ḥmt-nswt, jrj-pꜥt, m33t-[Ḥr]-Stš, ẖnmt-nfrt-ḥḏt, Nfrt-ḥnwt, m3ꜥt-ẖrw*," or "king's wife, hereditary princess, she who sees [Horus] and Seth, the associate of the white-crown-bearer, Nefret-henut, justified." According to Daniel Fouquet, who examined remains of the skeleton, the lady may have been between forty and forty-five years old when she died.[213]

After Nefret-henut's burial, a second, larger limestone sarcophagus was placed in the north chamber. The identity of the person interred here is unknown, but she (or he) must have been a close relative of the queen. After the second burial, the floor slabs of the upper chamber were reinstalled.

The Superstructure

On De Morgan's plan, pyramid 2 is depicted as a mastaba of 14 x 23 m without any indication of a casing. From the small shaded area on his plan, one can infer that he did not excavate the whole monument and saw only a relatively small mound of bricks. The east edge of the brick subfoundation of the pyramid casing, which consists of a single course, was discovered in 1997. The pyramid's brick core could not be reached because of a high mound of debris to the west. Casing fragments found in 1997 established that the pyramid had a slope of 62–62.5°. The base length of the pyramid was not confirmed, but it should be the same 32 cubits (16.80 m) as pyramid 3.

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[212] We collected all fragments and moved them back into the tomb. Although some of them may fit together, too many pieces are missing to allow an actual reconstruction of the sarcophagus and its lid.

[213] De Morgan, *Dahchour* I, p. 151.

The East Chapel

(fig. 20D; pls. 41, 42a–b, 142d)

Perring's large, central, north-south trench, now filled with sand, lies directly east of the east chapel of pyramid 2. Perring found architectural elements and relief fragments in this area, some of which were published,[214] but this material could have belonged to either the chapel of pyramid 2 or the nearby north chapel of the king. Based on its inscription, the relief block illustrated in Vyse, *Gizeh*, figure 7, originated from the chapel of a royal lady, most probably Nefret-henut (pl. 51C). The block seems to have preserved a complete profile of the entablature, along with remains of the interior decoration, which included a *kheker*-frieze and the titles of the queen below it. It is interesting that the drawing indicates not a round torus, but rather an element with a rectangular profile, which may be similar to the horizontal ledges separating the torus and cavetto cornice in the royal pyramid temple and the chapels of the other queens' pyramids.

During the 1997 season, the area of the east chapel was excavated. Fortunately, Perring's trench had cut along only its east edge, leaving some interesting remains in the west. As was to be expected, only part of the brick subfoundation of the chapel was preserved. The bricks, laid a few centimeters above those of the pyramid subfoundation, were obviously added later. The subfoundation of the northwest corner of the chapel was completely demolished, probably by stone robbers. The width of the brick platform was 5.285 m, suggesting that the intended measurement was 10 cubits (5.25 m). The east-west depth varies between 4.05 and 4.10 m, but the easternmost bricks might have been destroyed by Perring's trench; the original width was probably 8 cubits (4.20 m).

We also found architectural elements and a modest number of fine, small relief fragments from the chapel decoration. A few fragments suggest that the chapel had objects or elements made of red granite, quartzite, and diorite. A key discovery was a complete entablature piece (fig. 20D; pl. 142d), preserved from the torus to the upper ledge, which allowed us to record the dimensions of the single elements.

DIMENSIONS OF THE ENTABLATURE

	Measurements	*Calculated*
H. upper ledge	8.0 cm	4 fingers (7.5 cm)
H. cavetto leaves	31.5 cm	17 fingers (31.875 cm)
H. lower ledge	7.8 cm	4 fingers (7.5 cm)
H. torus	7.2 cm	4 fingers (7.5 cm)
Total H.	54.5 cm	29 fingers (54.375 cm)

It appears that the cavetto cornice was intended to be slightly more than four times higher than the upper ledge and the torus (1-4-1-1).

The Underground Apartments

(pls. 77b–d, 78, 79c–d, 95–98)

Bibliography: De Morgan, *Dahchour* I, pp. 53–55, figs. 117–20; J. Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1990–1991," *Orientalia* 61 (1992): p. 251, fig. 2

The upper gate of tomb 2, which is still complete, has a pivot hole in its outer lintel and a shallower one in the sill. The gate was probably closed with a wood door during the period between the completion of construction and the burial, after which the entrance was filled with limestone blocks. Traces of the mortar used to secure the blocks remain, and De Morgan's plan even suggests that he found the entrance still half blocked.

Probably at the time of the queen's burial, an object larger than had been anticipated by the builders had to pass through the gate. As a result, the two west frames were cut back, enlarging the original 76 cm width of the passage to 79 cm. The alteration was made only from the bottom of the doorway to a height of 100 cm, reflecting the size of the object, probably a heavy wood coffin. Traces of mortar cover these chisel marks, indicating that the final stone blocking was put in position only after the object entered the tomb.

However, another alteration became necessary. Since the second sarcophagus in the north chamber (p. 63) is 111.5 cm wide and 95 cm high, the enlargement of the doorway would have been insufficient. In order for the second sarcophagus to enter the tomb, the east side of the doorframe had to be entirely removed. This would have been inevitable anyway, because turning the sarcophagus 90° from the east-west upper corridor into the north-south tomb would have required a curved corner. After the maneuver, the blocks of the east doorframe were reinstalled; perhaps the gap between the lintel and the east frame was a result of this operation.

The well-preserved, vaulted upper chamber was carefully cut from the *gebel*. The paving slabs are still in position, except for the second one, which was removed by the robbers when they entered the crypt. The outer edges of the blocks are better dressed than the remainder of the upper surfaces, but they are probably not level enough to support a wall lining.

Still visible are remains of five rough rock-cut steps leading down into the lower chambers. The staircase ends with a vertical drop, which has a deep niche of unknown purpose cut into it.

In the west wall, a 2.5 m long corridor, which is 35 cm higher than the floor of the main corridor, leads into a side chamber. Neither corridor nor chamber had been completed, and the irregular floor was not cut down to its final level. The room may have been intended for the canopic equipment belonging to the second burial. In his plan De Morgan indicates that the corridor to the chamber had a brick blocking.

In the east wall, a shorter passage leads to the well-preserved main canopic shrine. De Morgan's plan shows that the entrance into the passage was still blocked with bricks, though no finds are mentioned. In front of the shrine, recesses too large for putlogs were cut into each of the side walls; the south one was left unfinished. The shrine consists of the pavement slabs, three courses of wall blocks, and the roof slabs. A deep recess was cut into the front in order to accommodate the blocking. The floor of the shrine has four shallow depressions, arranged so that they enclose the floor's northwest quarter.

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[214] Vyse, *Gizeh*, figs. 1–10 between pp. 62 and 63.

They are similar to the depressions in front of the king's sarcophagus (p. 35) and the sarcophagus of Queen Weret II (pp. 79–80), but correspond more closely to those in front of the king's canopic shrine (p. 35). In addition, there are two parallel grooves running north-south. The purpose of all these elements is mysterious. A canopic chest would not have rested on such sockets; it would have been larger and have stood in the center of the shrine. The lower half of the walls has been stained by bricks, and the upper half by muddy hands.

All doorframes in the tomb are slightly curved. The east sides of both doorframes of the crypt were chiseled back, enlarging the opening from 118.5 to 123.5 cm. The alteration must have been carried out at the same time as the removal of the gate of the upper chamber, when the second sarcophagus was brought into the tomb. In De Morgan's time, the entrance to the crypt was still partially blocked with stones that have left mortar marks. The robbers lifted floor slabs in the entrance and in the crypt to determine if there was anything beneath them. The side walls of the crypt are composed of three courses of blocks, and the higher end walls of five courses. The vault is constructed of seven pairs of beams, with all central joints angled in the same direction; the joints may be V-shaped.

The north chamber is completely filled with the second limestone sarcophagus, which could have been moved through the doorway only after the lower half of its east frame and a few centimeters of its west one were cut back. The flat, unlined roof of this chamber has partially collapsed.

The unlined east chamber ("treasury") has a slightly vaulted ceiling. Behind the entrance are two 37 cm deep grooves cut into the side walls, similar to those in tombs 1, 3, and 4. They were probably intended for the insertion of a wood lintel.

De Morgan does not mention having found any canopic equipment in this tomb. That at least one burial had taken place can be deduced from a tiny piece of gold foil found adhering to the doorframe closest to the southeast corner of the sarcophagus, and by De Morgan's discovery of "deux têtes de massue, l'une de granit, l'autre de quartz, placées toutes deux près du sarcophage de la reine Nefert Hent."[215] We found a clean, unused Middle Kingdom limestone lamp standing on the rim of the sarcophagus, where it had been placed by De Morgan and forgotten. See also page 123.

The Sarcophagus of Nefret-henut

(pls. 78b–c, 79d, 105–6A, 119, upper)

Bibliography: De Morgan, *Dahchour* I, pp. 53–54, figs. 117–18

The sarcophagus is made of poor quality, dark yellowish quartzite, which had many irregularities covered with plaster. The lower half of the sarcophagus has a paneled palace-facade decoration, with four gates along the east side and one on the south side. The west and north sides cannot be clearly seen, but seem to have the same pattern. The sarcophagus stands on four decorative battens.

The lid curves and has rectangular ends. The lid was slid into position from the east, so that a tenon on its underside joined a sloping groove on the upper surface of the box. A pair of *udjat*-eyes was cut into the north end of the east side along with the inscription "*jrj-pꜥt, ḥmt-nswt, ẖnmt-nfrt-ḥḏt, Nfrt-Ḥnwt, mꜣꜥt-ḫrw*," which translates as "hereditary princess, king's wife, the associate of the white-crown-bearer Nefret-henut, justified." The poorly carved sunken relief eyes and the hieroglyphs were outlined in black to clarify forms that otherwise would have been nearly invisible.[216] The *udjat*-eyes and the text panel constitute the earliest example of this type of sarcophagus decoration at Dahshur,[217] which is also found on the sarcophagi of Menet and Senet-senebetes at Dahshur (p. 72) and Neferuptah at Hâuwaret El-Maqta.[218]

The robbers lifted the east side of the lid using two levers, which have left marks on the center and the southeast corner. Above the inscription the lid is covered with soot from the oil lamp of the thieves who worked at the head end of the mummy. The interior of the sarcophagus lacks oil stains, but does have a double row of black strokes along the west side left by the stoneworkers. Nevertheless, one may assume that the queen was buried in her sarcophagus.

Dimensions:	L.	of box	258.4 cm
	W.	of box (top)	101.5 cm
	W.	of box (bottom)	106.1 cm
	H.	of box (total)	105.1 cm
	L.	of lid	259.8 cm
	W.	of lid	101.5 cm
	H.	of lid	34.2 cm

The Second Sarcophagus

(pls. 78b, d, 106B)

The limestone sarcophagus is undecorated and uninscribed; the lid originally had the customary curved surface and rectangular ends. A rather disrespectful incident occurred after the burial, when the workers could not slide the complete lid into place: they cut it into five sections and reduced its height by flattening the originally curved surface. The pieces were pushed into position in the wrong sequence, and the joints were disguised with plaster. Lid and box had no groove-and-tenon connection. The robbers removed only the southernmost piece of the lid. On the bottom of the sarcophagus are green stains, probably from the copper nails of the coffin battens, confirming that a burial occurred.

Dimensions:	L.	of box	273.5 cm
	W.	of box	111.5 cm
	H.	of box	95.0 cm
	W.	of lid	111.5 cm
	H.	of lid (estimated)	38.5 cm

PYRAMID 3
(PRINCESS ITAKAYET)

(figs. 20A–C, 21a; pls. 40, 76, 77a, 79a–b, 82d, 86B, 91–94, 107)

The Owner

The owner of pyramid 3 and the corresponding tomb was a Princess Itakayet. We found her name and titles preserved on the right half of a tympanum block, which must have been

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[215] De Morgan, *Dahchour* I, p. 73. Very similar are two mace heads found in the tomb of an anonymous queen in the pyramid of Amenemhat III at Dahshur, see Dieter Arnold, "Dahschur. Dritter Grabungsbericht," *MDAIK* 36 (1980): p. 20. This anonymous queen may have died in about year 35 of Amenemhat III, see Arnold, *Amenemhet III*, p. 93. Is this parallel sufficient to date Nefret-henut's burial to the same time?

[216] For the difficulty of carving quartzite, see Arnold, *Building*, p. 40. The existence of beautifully worked quartzite sculpture of the later Twelfth Dynasty shows that sculptors were able to work this hard stone.

[217] Schwab, "Sarkophage," p. 104.

[218] The latter one with mutilated hieroglyphs, see Nagib Farag and Zaky Iskander, *The Discovery of Neferuptah* (Cairo, 1971), fig. 20, pl. 16b.

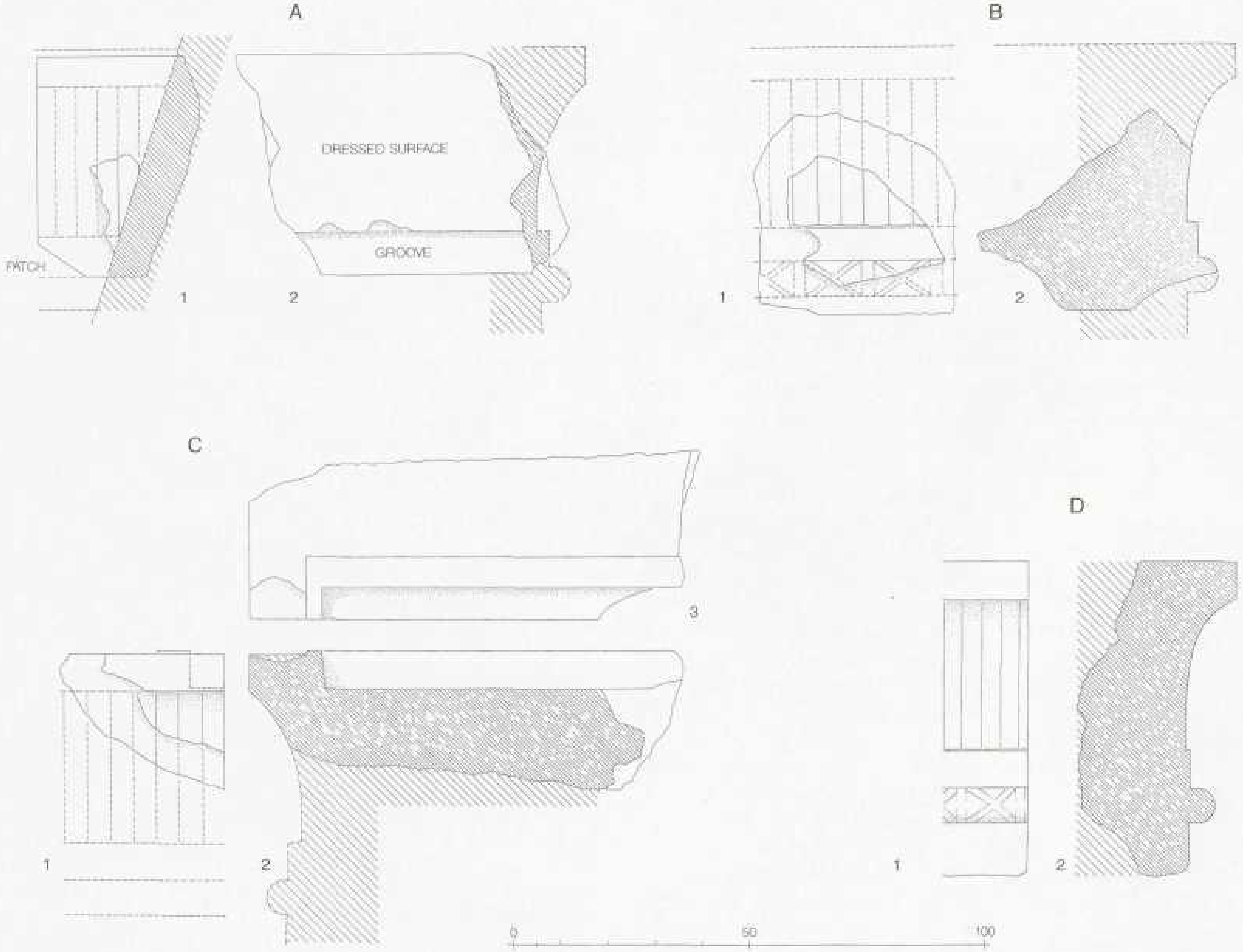

Fig. 20. Three fragments from the east chapel of pyramid 3 (Itakayet). *A)* Cavetto cornice from northwest corner of chapel bonded to pyramid casing, front view [1], and side view [2]. *B)* Cavetto cornice, front view [1] and side view [2]. *C)* Cavetto cornice with remains of roof, front view [1], side view [2], and top view [3]. *D)* Fragment of cavetto cornice from the east chapel of pyramid 2 (Nefret-henut), front view [1] and side view [2]. Scale 1:12.5. Drawings D.A.

located under the curvilinear ceiling of the chapel's vaulted offering chamber. She is called "*///s3t-nswt nt ẖt.f Jt3-k3jt*," which translates "daughter of the king of his body, Itakayet." From other relief fragments found in the remains of her cult chapel, we learn that she was also heralded as "*wrt sḫm, wrt jm3t, bnrt, mrwt*," "powerful, graceful, amiable, and beloved." The location and association of the tomb and the discovery of a relief fragment with the Horus name of Senwosret III near her cult chapel suggest a relationship with this king.[219] The lady may be identical with the Princess Itakayet mentioned in the Kahun papyri along with a Prince Senwosret-seneb and a Princess Nefret, who are considered to be children of Senwosret II:

> "[offerings] for the:
> wife of the king, the mother, the associate of the white-crown-bearer,
> son of the king, Senwosret-seneb,
> daughter of the king, Itakayet,
> daughter of the king, Nefret."[220]

Princess Itakayet may therefore have been a sister or half sister of Senwosret III.

The Superstructure

(pl. 40)

On his plan De Morgan misinterpreted the structure as a 17 x 27 m mastaba, which had a 2.50 m wide subfoundation for the casing along the west side and the west end of the north side. Between the north edge of the "mastaba" and the original north outer enclosure wall, De Morgan documented an east-west brick wall 18 m long and 2.2 m wide. The purpose of this structure is difficult to explain.

In 1993, in order to resolve outstanding questions about the monument, we dug a north-south trench above the west part of pyramid 3, between the stone inner enclosure wall and the original brick outer enclosure wall. Since we expected that Perring's trench had considerably disturbed the area, we placed our section farther to the east, avoiding the actual west edge of pyramid 3, a decision we regretted since the brick subfoundation seems to be still preserved there. The entire area of the four north pyramids was used for post–New Kingdom surface burials. Irregular tomb pits were cut into the brick surfaces of the pyramid cores and the original outer enclosure wall, causing considerable damage. The trench revealed the following features.

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[219] The fragment was found near the west side of pyramid 4. While it is more likely to have originated from the east chapel of pyramid 3, the possibility that it comes from an east or north chapel (if one existed) of pyramid 4 cannot be completely discounted. See also p. 146.

[220] Borchardt, "Papyrusfund," p. 91.

1. White plaster still partially covered the original outer enclosure wall, of which the foundation platform and the lowest courses of the wall were preserved. On the south side of the wall, a pile of broken brick had melded into a solid mass, and the edge of the wall could not be delineated. It is assumed that this mass of brick is identical to De Morgan's 18 m long east-west "wall." The core of the wall was hollowed out for numerous, post–New Kingdom burials.
2. The brick subfoundation that would have supported the north stone casing of pyramid 3 was well preserved, suggesting a 5 cubit wide (2.625 m) stone foundation, of which nothing remains.
3. The lowest courses of the pyramid's brick core sit immediately beneath the present desert surface. The brick core in our section seemed to slope down toward the west, suggesting that we were near the west edge.
4. The brick subfoundation for the stone casing of pyramid 3 was uncovered near the southwest and northwest corners.
5. The brick subfoundation of the stone inner enclosure wall seems to be well preserved, though we could excavate only the four northernmost rows of bricks. Additional rows should lie to the south under the masses of heavy stone debris, which contains fragments of the wall as well as pieces of the king's north chapel that probably lies 10 m to the southwest.

The trench permitted us to establish that the north-south length of the subfoundation of pyramid 3 is 16.98 m. From this dimension one can estimate that the pyramid base measured 32 cubits north-south (16.80 m) and that the platform slightly protruded. The pyramid was about 4 cubits away from both the inner enclosure wall and the original outer enclosure wall. The total width of the original north outer court was 40 cubits. From the base length of the pyramid and several huge casing blocks with slopes of 61°, 61°, and 63°, the height of the pyramid can be calculated as 32 cubits (16.80 m).

The East Chapel

(figs. 20A–C, 21AA; pl. 40)

In 1996, we excavated the area of the cult chapel attached to the east side of pyramid 3. The building had been completely dismantled by robbers, who left only heaps of fallen bricks and stones. The chapel's brick subfoundation measured 3.96 m east-west and 5.39–5.40 m north-south, suggesting a building intended to be 7–8 x 10 cubits (3.675–4.20 x 5.25 m). The subfoundation is only one course thick, except at the southwest corner, where a platform with a second course of bricks suggests that the stone foundation was thinner in this area. The arrangement could indicate that the rooms above had a different structure.

The limestone debris contained not only numerous fragments of the chapel's relief decoration, but also a good number of architectural elements. Many fragments of the vaulted ceiling with yellow stars on a blue background remain, including one that joins the tympanum inscribed with the name of Itakayet. Numerous torus and cavetto cornice fragments (fig. 20A–C) belonged to the outside decoration of the chapel. One block preserves the connection between the cavetto cornice and the pyramid casing, while another originates from the juncture of the chapel's south wall and the pyramid casing (figs. 20A, 21AA). No fragments of a false door have been found. A quarter of a cubic meter of alabaster fragments, a few of which are inscribed, originate from an altar. Three fragments of curved fillet stones from the roof were also excavated.

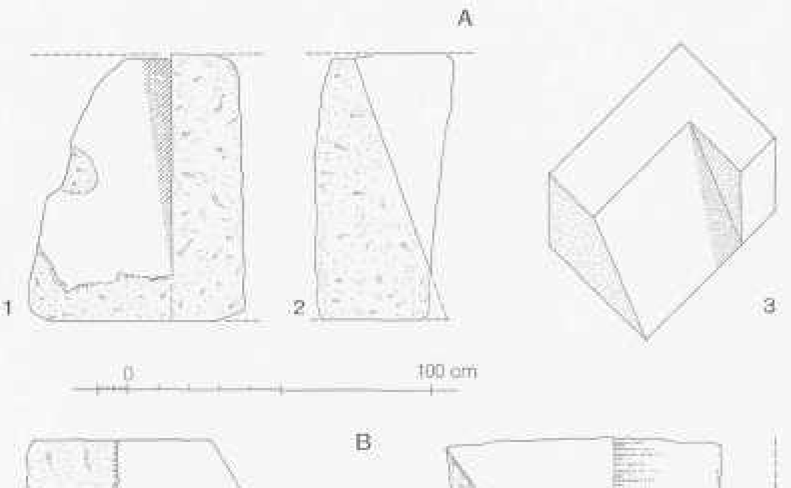

Fig. 21a. Fragments of two casing blocks from pyramid 3 (Itakayet). *A)* Block preserving pyramid casing and south wall of east chapel, front view [1], side view [2], and reconstruction [3]. *B)* Corner block from casing, side view [1] and top view [2]. Scale 1:25. Drawings R.T. and D.A.

The Underground Apartments

(pls. 76, 77a, 79a–b, 82d, 91–94)

In front of the now-missing gate of tomb 3, the ceiling of the upper corridor has collapsed. Stone robbers removed the entire gate, except for the front part of the sill.[221] The groove in the sill used to install the wood door wing is filled with mortar, indicating that a door was put in place.

The upper chamber was vaulted, as can be seen at the top of the north wall, but the center of the ceiling has collapsed. The builders tried to remove some huge natural boulders deeply embedded into the *gebel* of the side and rear walls, but eventually abandoned this futile effort, leaving unsightly cavities in the chamber walls. The floor was made of limestone slabs, and two long slabs still sit on the ledge along the west wall. Since the blocks that covered the staircase would have been oriented east-west, the two existing slabs cannot be in their original positions, and may have been turned by stone robbers.

The four upper steps of the staircase leading to the lower level are cut into the *gebel*. At the lower end, the last step drops steeply for about one meter. The unlined ceilings of the passages to the crypt and to the canopic shrine were originally vaulted, but because parts of the ceiling have fallen, they have lost their curved shape.

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[221] One wonders whether the gate was "dislocated" by the builders of one of the other tombs (1 or 4?) that are accessed from the upper corridor.

At the bottom of the staircase we discovered a small pit (53 x 88 cm at the bottom, 97 cm deep) covered by a broken limestone slab (22 x 58 x 95 cm). The pit was filled with limestone chips, sand, and some animal bones, and originally must have contained a large deposit with food offerings that probably included ox and fowl. Above the pit and in front of the lowest step, two 30 cm deep putlogs were cut, apparently to secure two huge wood beams used to lower the sarcophagus. The beams were supported by three smaller limestone blocks positioned on the lid of the pit. During the process of lowering the sarcophagus, the pit lid cracked under the weight. Thieves easily discovered and robbed the pit, leaving its contents smashed and mixed together.

De Morgan found the canopic shrine of Itakayet completely preserved along with its contents. The shrine was constructed with three pavement slabs, three courses of wall blocks, and three ceiling slabs. The front has a recessed frame, apparently meant to be filled by the blocking (see below). A few traces of mortar may indicate the accuracy of De Morgan's description that the shrine was walled up:

> . . . Dans la tombe n° 3 une muraille de grès et des briques n'avait pas été détruite par les spoliateurs. J'ouvris cette porte et trouvai derrière une seconde muraille en calcaire de Tourah. . . . [222]

According to De Morgan's plan, the "muraille de grès" was situated in front of the corridor leading to the canopic shrine. The second limestone blocking is not shown, but it may have sealed the front of the shrine itself, while the bricks may have filled the short corridor between the two walls. De Morgan continues:

> . . . Cette deuxième fermeture ayant été brisée, j'entrai dans un petit caveau carré au milieu duquel était une coffre cubique en granit. Cette caisse n'avait jamais été ouverte, elle contenait de superbes canopes d'albâtre malheureusement sans inscriptions. . . .

The granite chest seems to have contained two standard canopic jars and two unusual, oval containers (see below). One wonders, however, why De Morgan called the shrine "un petit caveau."

One also wonders why De Morgan labeled the drawing of the oval container with the letter a, since he also used this letter to mark the canopic shrine of tomb 4 on his plan.[223] Is it possible that the canopic equipment was found in tomb 4 rather than tomb 3? Arguing against this possibility is the observation that the canopic chest is granite, a material that corresponds to the granite sarcophagus of tomb 3, while the sarcophagus of tomb 4 is limestone.

The doorframe at the entrance to the crypt is curved, as are all the doorframes of tomb 3. The frame was completed except for the lintel, which remained rough and bears marks left by a 2.4 cm wide chisel. The inner doorframe had a double-winged wood door. The pivot holes outside the frame are carefully cut, and the groove for inserting the door wings was filled with a limestone patch.

Inside the vaulted burial chamber, all joints are disguised with plaster, all surfaces are carefully smoothed, and the pavement is still largely intact. The side walls are composed of three courses of blocks and the higher end walls of five courses. Eight pairs of roof beams meet at the apex and have oblique, V-shaped joints, all of which face the same direction, rather than alternating. The robbers abandoned a small hole they had begun in front of the sarcophagus.

The entrance to the north chamber was closed with two wood door wings, as can be seen from the pivot holes behind the doorframe. That the doors were actually installed is verified by the mortar that fills the groove used to insert the wings. The unlined chamber was carefully dug from the *gebel* and is still well preserved. The ceiling behind the lintel has only recently fallen down. The stone-lined outer doorframe and inner doorframe cut from the *gebel* were smeared with mortar.

The east chamber ("treasury") was well cut from the *gebel* and has a flat ceiling. The entrance was originally closed with a wood door. In the *gebel* floor is a carefully worked limestone pivot hole, while the upper pivot hole was made of wood and inserted into a 16 cm deep socket in the side wall. A bolt hole with a semicircular cross section is cut into the north doorframe, indicating that the door wing could be locked. Behind both sides of the entrance, 45 cm deep and 90 cm wide grooves were cut into the doorway in order to insert a wood lintel, which was probably never installed. In the northwest corner of the east chamber a pottery dish was found leaning against the wall, apparently forgotten by De Morgan, who usually removed all objects from the tombs, including the human remains.

The Sarcophagus

(pls. 76d, 107)

The sarcophagus of Princess Itakayet is of red granite, a perfectly smoothed masterwork of Egyptian hard stone carving. The sarcophagus is completely preserved except for the southeast corner of the lid, which was broken when it was closed and subsequently repaired with plaster. The repair, and consequently the entire surface of the sarcophagus, were covered with a wash of pinkish paint. The lower edges of the sarcophagus and the gap between the sarcophagus and the wall were also plastered, hiding the empty space. The sarcophagus has a slightly protruding pedestal or base with a beveled lower edge. There are no battens, decoration, or inscriptions. The interior of the sarcophagus is darkish but bears no stains from sacred oils or other such substances. The lid is curved and has rectangular ends. It was pushed in place from the east, so that a sloping protrusion on its underside locked into a corresponding depression in the box.

Dimensions:	L.	of box	246.4 cm
	W.	of box (bottom)	100.5 cm
	H.	of box	98.7 cm
	L.	of lid	243.5 cm
	W.	of lid and top of box	97.5 cm
	H.	of lid	29.4 cm

The Canopic Chest

(pl. 86B)

Egyptian Museum, Cairo JdE 30956, CG 4047
Bibliography: De Morgan, *Dahchour* I, pp. 56–57, 73; Reisner, *Canopics*, p. 28, no. 4047, pl. 80

The outside edge of the box's rim is higher on three sides, creating a gap in the front through which the curved lid was slid into position. A projecting rectangle on the underside of the lid fits into the open side of the box's rectangular rim. According to De Morgan, the large, red granite chest held two unusually shaped alabaster containers and two standard alabaster canopic jars.

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[222] De Morgan, *Dahchour* I, pp. 56–57, fig. 124.
[223] De Morgan, *Dahchour* I, p. 58, fig. 128, p. 73.

Dimensions: L. 73 cm; W. 73 cm; H. 58 cm

Two Canopic Containers

Egyptian Museum, Cairo CG 4025–26
Bibliography: De Morgan, *Dahchour* I, pp. 56–57, 73, fig. a; Reisner, *Canopics*, pp. 14–15, nos. 4025–26, pl. 5; Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt: Equipping the Dead for Eternity* (London, 1998), p. 280, fig. 407

Itakayet's two uninscribed alabaster containers have a unique oval shape. Sculpted human heads were attached to the tops of their flat lids. The pieces were labeled "Near sarcophagus, 3" by the excavator.

Dimensions: L. 35.7 cm; W. 10.8 cm; H. 25.5 + 11.5 cm (lid)

Two Canopic Jars

Egyptian Museum, Cairo CG 4023–24
Bibliography: De Morgan, *Dahchour* I, p. 73; Reisner, *Canopics*, pp. 14–15, nos. 4023–24, pl. 5

The princess also had two standard alabaster jars with lids in the form of human heads. According to De Morgan, the two pairs of containers were found in the same canopic chest, which is indeed large enough to accommodate all of them.

Dimensions: H. 25 + 11.5–12.3 cm (lid)

PYRAMID 4

(pls. 41, 42c–d, 47c, 74–75, 87–90, 108)

The Owner

The owner of pyramid 4 has not yet been determined. De Morgan found an inscription in the area, which refers to a "*///ḥnwt ḥmwt nbwt, s3t-nswt nt ẖt.f, ẖnm[t-nfrt-ḥḏt?] ///*,"[224] or "mistress of all women, daughter of the king of his body, the associate of the white-crown-bearer." Since the owners of pyramids 2 (Nefret-henut) and 3 (Itakayet) have different titles and since pyramid 1 may have been usurped by a man, Nesu-Monthu, one might assume that De Morgan's fragment originated from the remaining fourth pyramid. Although the title *ḥmt-nswt* is not preserved, the title *ẖnmt-nfrt-ḥḏt*, "the associate of the white-crown-bearer," suggests that the princess became a queen.

In his plan of the area, De Morgan indicates the findspots of four Greek inscriptions, two east and two west of pyramid 4, which were probably tombstones of the Ptolemaic or Roman Period. One of the relief fragments found by the present excavation in the east chapel of pyramid 4 includes the Khakaure cartouche within an offering formula, suggesting a construction date during the reign of the king.

The Superstructure

(pls. 41, 42c–d)

In 1996 we excavated a small area of the pyramid's northwest corner; in 1997, the center of the east side and the chapel; and in 1998, the center of the north side. Preserved were one or two courses of the thick brick subfoundation, which was 2.38 m wide in the east and 2.18 m wide in the north. One damaged limestone foundation block is still in position south of the chapel. Based on the excavated subfoundation, an overall dimension for the pyramid base of 16.75 m can be calculated, suggesting a pyramid of 32 x 32 cubits (16.80 m), with a protruding base of 3 palms (22.5 cm).

Also exposed were remains of the pyramid's brick core, which was heavily disturbed by later tombs. While searching for the east chapel, we exposed the center of the east side of the brick core. Here the bricks sit on an approximately 70 cm high socle of *gebel* that was left standing when the foundation trench for the pyramid casing was dug.

Since the north side of pyramid 4 apparently aligns with the north side of pyramid 3 (Itakayet), the dimensions of the two structures should correspond. Remains of a 1.755 m long casing block have survived,[225] and inclinations of 56°, 57°, 57.5°, and 58° have been measured from several large fragments. These angles differ markedly from the 60–63° of the other subsidiary pyramids, suggesting an intentional distinction. The ancient ratio of 7 x 4.5 palms (14/9) might have been used, which would create an angle of 57°15'50". The resulting pyramid would have been about 25 cubits (13 m) high, and therefore 3.8 m shorter than pyramids 2 and 3.

The search for a north chapel yielded inconclusive results, because the brick core in the center of the north side has been demolished by later tombs. Only an excavation larger than our narrow north-south trench might reveal whether or not the brick core contained a cavity for a north chapel. A hint that a north chapel may have existed is provided by a few architectural and relief fragments found north (i.e., outside) of the nearby original outer enclosure wall.

The East Chapel

(pls. 41, 42c–d, 47c)

In 1997 we excavated the subfoundation of the cult chapel in the east. Limestone architectural fragments show that this structure was of the same type as the other pyramid chapels in the cemetery. The subfoundation consisted of one course of bricks that formed a 4.14–4.34 x 4.98–5.24 m distorted rectangle, suggesting a stone foundation platform of about 8 x 10 cubits (4.20 x 5.25 m).

The Underground Apartments

(pls. 74–75, 87–90)

The upper gate of tomb 4 is the only one of the four that remains in excellent condition. The space between the well-dressed limestone blocks and the *gebel* was carefully closed with bricks that were plastered with mortar. No traces of a final blocking can be detected, but pivot holes in the sill and lintel indicate that there had been at least a temporary wood door.

The upper chamber was meticulously cut from the *gebel* with a carefully drawn shallow vault, of which the center part has collapsed. The floor of the upper chamber consisted of six to seven limestone beams resting on wide ledges along the side walls. Two fragments are still in position, while three more lie in the passage below.

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[224] De Morgan, *Dahchour* I, fig. 182.

[225] The block has saw marks along the sloping front edge and a thin coat of gypsum mortar on the top surface. The upper front edge was patched and both ends have cramp sockets.

Originally, a staircase allowed the construction workers access to the lower chambers; the four lower rock-cut steps still remain. Alterations were made to the upper part of the staircase when the stone entrance gate was built. In order to support the gate's heavy threshold block, two lateral brick piers with a stone foundation on top were built on either side of the staircase. The threshold slab overhangs the staircase and clearly shows that the gate provided access only to the upper chamber, and was not meant to lead to the staircase.

On the lower level, in the east wall, a passage leads into the subsidiary queens' gallery containing tombs 5 to 12. The corner between the beginning of the lower corridor and the passage of tomb 4 is smoothly curved to facilitate the introduction of sarcophagi or other large objects coming from the direction of the T-shaped chamber. Either because the passage into the lower gallery had been built or its construction was anticipated, the canopic shrine was placed in the west wall (pls. 74b, 88), rather than in its standard position in the east wall. A short corridor that was originally slightly vaulted leads to the canopic shrine, which has limestone paving slabs, three wall courses, and roof slabs. The front of the shrine was dressed back in order to accommodate the blocking; the lowest block (25 x 52 x 110 cm) was left in situ by De Morgan, but removed by us in order to complete our drawings. For the slight possibility that the canopic equipment in the Egyptian Museum, Cairo (CG 4023–26, 4047) was found in the canopic shrine of tomb 4, rather than that of tomb 3 (Itakayet), see page 66.

The lower corridor in front of the crypt has a vaulted ceiling cut from the *gebel*. The crypt's doorframe is perfectly preserved and is cut flat like all the doorframes in tomb 4 (unlike those of tombs 2 and 3, which are curved; see pp. 63 and 66; tomb 1 also has flat doorframes, see p. 60). The reveals of the doorway are covered with smeared mortar from the blocking.

The limestone-lined crypt has side walls built of three courses of blocks and end walls of five courses. The foundation is composed of slabs 36 cm thick that rest on the *gebel*, and occasionally on leveling stones, as can be seen through the robbers' hole in front of the sarcophagus. The short foundation blocks extend under the side walls of the crypt, providing poor support for the walls and the vault. The vault consists of eight blocks on the west side and seven on the east side, connected by joints that slope in alternating directions. Since the blocks vary in width, they are not set evenly, creating a jagged joint down the center of the ceiling. Was this careless planning or an intentional weaving together of the blocks? The front edges of the upper wall blocks step back in order to grip ledges on the undersides of the roof blocks, preventing them from sliding outward.

The door to the north chamber is unusually wide (112 cm), perhaps in preparation for a second sarcophagus. The chamber was carefully cut from the *gebel*, but its ceiling has collapsed.

The east chamber ("treasury") had a slightly vaulted ceiling 2.32 m high that has collapsed; the vault began at a height of 2.07 m. On both sides of the entrance, deep sockets were cut in order to fix a wood lintel. Similar preparations were made in the other three tombs as well, but no remains of wood were detected. For the possibility that the beautiful limestone canopic chest in the Egyptian Museum, Cairo (CG 4050), was found here, see page 87.

The Sarcophagus

(pls. 74c–d, 75a–b, 108)

Except for the secondary burial in tomb 2, this sarcophagus was the only one composed of several limestone slabs. Because pieced-together sarcophagi could easily be opened by robbers, they were used only when transport problems hindered the introduction of a monolithic sarcophagus. A pieced-together sarcophagus in tomb 4 is unexpected, since the three crypts that were farther from the main (queens') shaft had monolithic sarcophagi. The sarcophagus in tomb 4 originally consisted of three bottom slabs, three wall slabs on each long side, and one slab on each end wall. The monolithic lid is slightly curved, has rectangular ends, and lacks a tenon-and-groove connection to the box. The lid's cylindrical handles have been broken away.

Stone robbers removed several blocks, unfortunately including the one that might have been inscribed with the owner's name. The southeast corner was repaired with mortar. All blocks were connected by wood dovetail cramps that have left only traces of sawdust. The robbers removed the central slab from the box in order to cut into the pavement below because they suspected that valuables had been hidden under the floor.

Dimensions:	L. of box	265.0 cm
	W. of box	109.0 cm
	H. of box	98.0 cm
	L. of lid	265.0 cm
	W. of lid	109.0 cm
	H. of lid	37.5 cm

The Date

The date of the tomb is puzzling. On one hand, the four individual tombs that are accessed through the upper corridor seem to form a unit that predates the subsidiary queens' gallery. On the other hand, the location of the canopic shrine of tomb 4 seems intended to accommodate the subsidiary queens' gallery. The curved corner between the entrance corridor into the tomb and the subsidiary queens' gallery does not make sense unless we assume that sarcophagi and other large objects were moved through that area. One may conclude, therefore, that tomb 4 does not belong to the original project but was added after the construction of the west branch of the subsidiary queens' gallery. The concept of a later date is also supported by the lack of curved doorframes, which are otherwise typical of buildings constructed during the reign of Senwosret III. The pieced-together sarcophagus and the smaller size of pyramid 4 might be further indications of a later date (the size of pyramid 1 is uncertain, p. 60). If tombs 1 and 4 were later additions, the original project would have comprised only tombs 2 and 3 and their corresponding pyramids.

The Subsidiary Queens' Gallery

TOMBS 1–4

(pls. 67, 73a, 74a)

Later in the reign of Senwosret III—perhaps around year 30—tombs for royal ladies were built on the north side of the pyramid; tombs 2 and 3 seem to have been constructed first, followed by tombs 1 and 4. Four large pyramids served as their superstructures (pp. 58–59). The burial apartments are not accessible through individual shafts at each pyramid but rather

TOMBS 5 TO 12

De Morgan	*Title*	*Name*	*Canopic Equipment*	*Date post quem*
5 n	Princess	anonymous	granite chest in Egyptian Museum CG 4064	
6 m	Queen(?)	*Meret(?)*	limestone chest in situ	Amenemhat III
7 k	Princess	*Senet-senebetes*	limestone chest in situ	
8 h	Princess	*Menet*	limestone chest in situ; alabaster jars in Egyptian Museum CG 4005–6	
9 c	Princess	*Sithathor*(?)	limestone chest in Egyptian Museum CG 4050?	Senwosret III
10 d	unknown	anonymous	limestone chest in situ	
11 e	unknown	*Sit-///*	limestone chest in situ	Amenemhat III
12 g	unknown	anonymous	limestone chest in situ	

have a common access route through the shaft of the T-shaped chamber in square S/36 (queens' shaft).[226] The reason for this arrangement is unclear. Did the builders believe that a single shaft had a better chance of remaining unnoticed than four? The intense activity around the single shaft, which was a result of building and preparing four tombs from the same location, certainly would have been noticed by potential thieves.

Access to the new upper gallery was achieved according to the following scheme. A new entrance was cut into the north wall of the shaft above the mouth of the sloping corridor that leads into the T-shaped chamber. Probably because they feared the soft *gebel* would collapse, the builders kept this entrance as low as possible, but it was too narrow to accommodate the enormous stone sarcophagi. The problem was solved not by heightening the ceiling but by temporarily removing the ceiling slabs of the sloping passage below (leading into the T-shaped chamber) and thus lowering the floor (for the details of this operation, see pp. 56–57). The new passage runs 4 m on top of the sloping corridor, then turns 90° to the west. In order to turn the sarcophagi from south-north to east-west, the corner was cut back and curved. After the completion of the chambers of tombs 1–4, the removed ceiling slabs were replaced.

The upper gallery is straight and level, 1.30–1.35 m wide and 1.80–2.10 m high, with a slightly vaulted ceiling; initially it was 105 m (200 cubits) long. The original plan may have been to line the corridor with limestone, but this was not carried out, probably because the lining would have restricted access. Later, the corridor was extended to the west for a total length of 112 m, perhaps in preparation for a fifth large tomb, which was never built.

The passage leads through layers of *gebel*, which was easy to cut but unstable, with inclusions of large, lentoid sandstone boulders, many of which were removed by the miners. Some of them had to be carved out of the walls, leaving deep cavities that threatened to collapse, while others that protruded from the ceiling were too large to be removed. These last remained a constant, potentially painful obstacle for unsuspecting workers rushing through the darkness. In order to gain more space for construction work, in front of each tomb entrance the corridor widens to 1.55–1.75 m and increases in height to 2.20 m. In front of tombs 2 and 4 there are additional niches, respectively 1.50 and 1.20 m deep, made either for some unknown religious purpose[227] or for the storage of tools and materials.

TOMBS 5–12

(pls. 67, 69–70, 83–85)

Probably during the coregency with Amenemhat III or even later, additional tombs for the interment of royal women were required. Either the women were of lesser rank than those buried in individual tombs, or limited space, time, or resources precluded the construction of separate monuments.[228] The T-shaped chamber in the northeast corner of the inner court was again used as an entrance to the additional crypts. After the T-shaped chamber lost its original function, it was first used to provide access to the upper queen's gallery. Since a westward extension of the upper gallery would have created technical problems, a new gallery was built at the level of the T-shaped chamber and the crypts of tombs 1 to 4. In order to provide access to the new tombs, the east and west side chambers or niches of the T-shaped chamber were demolished and reconfigured as two corridors, each of which contained four small chambers for sarcophagi. The groups were arranged in a peculiar fashion, with three tombs in the north and one in the south. Since the queens' tombs off the upper corridor all open to the north, one may assume that the six tombs on the north side of the lower galleries were the original ones, and that tombs 7 and 10 on the south side were added later. The galleries are 1.80–1.95 m wide, and originally were about 2 m high. Since they were carved into the *gebel*, a slightly vaulted ceiling helped to provide stability. The *gebel* was originally reinforced with a coat of white plaster. Unfortunately, collapses over the centuries have produced precarious caves with high ceilings, which forced us to build brick piers as a safety precaution. Since the east-west corridors were too narrow to allow the sarcophagi to be maneuvered into the north-south oriented chambers, parts of the separation walls were cut away, leading to rock falls, especially in the area of tombs 9 and 10.

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[226] This arrangement was modified at the pyramid of Amenemhat III at Dahshur, where the queens' tombs are aligned in a row under the king's pyramid, see Arnold, *Amenemhet III*, pl. 37.

[227] The queens' tombs under the pyramid of Amenemhat III at Dahshur were connected to cenotaph-like "south tombs," see Arnold, *Amenemhet III*, pls. 37, 56–57.

[228] Probably six royal women were buried inside the pyramid of Amenemhat III at Dahshur. However, Queen Neferuptah was the only royal woman buried inside or around the king's new pyramid at Hawara. Could it be that the queens and princesses who died in the later part of Amenemhat III's reign were buried in the pyramid of Senwosret III at Dahshur?

The eight tombs consist of shallow chambers or caves not much larger than the sarcophagi they house. In only two cases (6 and 7) separate niches for the canopic chests were cut into the east wall. Otherwise no provisions were made to house the huge stone chests, which were placed either behind (10) or in front of (5 and 8) the sarcophagi, or even in the passage itself (11 and 12). In the north wall of the west gallery, a shallow niche may have been intended to house a small stela.

Neither the present excavators nor De Morgan encountered remains of a pyramid or aboveground cult building for these royal women, though the extensive work around the entrance shaft might have destroyed any remains. However, one would not expect such a structure above the shaft, which was either kept open for many years or frequently reexcavated, but probably to the northeast (in squares S–T/38), where the present excavators have not yet worked.

THE TWO TREASURES FOUND BY DE MORGAN

The First Treasure

Egyptian Museum, Cairo

Selected Bibliography: De Morgan, *Dahchour* I, pp. 57–63, pls. 15–18; Émile Vernier, *Bijoux et orfèvreries*, Catalogue Général des Antiquités Égyptiennes du Musée du Caire (Cairo, 1907–9); Cyril Aldred, *Jewels of the Pharaohs* (London, 1971), pp. 189–91, 195, pls. 33–34; Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), pp. 52–54; Carol Andrews, *Ancient Egyptian Jewelry* (New York, 1991), pp. 15–18; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* (Ithaca, New York, 1998), pp. 102–14; Oppenheim, "Treasures," pp. 136–41, 148–51

On March 6, 1894, De Morgan's workers discovered in the floor "une cavitée creusée dans le rocher au pied du sarcophage C [sarcophagus 9]." The cavity contained a wood jewel box 30 x 30 x 30 cm and "incrusté d'or."[229] The box itself was in poor condition and could not be saved, but the excavators also found gold thread ("fils d'or") and perhaps five silver hieroglyphs from its inlay.[230] Within the remains of the box was a large collection of jewelry (thirty-seven entries are listed in De Morgan's publication), including a pectoral with the name of Senwosret II and scarabs with the names of Senwosret III and Princess Sithathor. Most of the objects in De Morgan's publication correspond to entries in the *Catalogue Général* of the Egyptian Museum, Cairo.

The Second Treasure

Egyptian Museum, Cairo

Selected Bibliography: De Morgan, *Dahchour* I, pp. 63–72, pls. 19–25; Émile Vernier, *Bijoux et orfèvreries*, Catalogue Général des Antiquités Égyptiennes du Musée du Caire (Cairo, 1907–9)

On the following day, March 7, 1894, a second treasure was found, similarly sunk into the floor of the corridor, this time in front of sarcophagus 7. The cavity also contained a gilded wood box, filled with about seventy pieces of jewelry and other valuables.[231] Again most of the objects in De Morgan's publication can be coordinated with entries in the *Catalogue Général*. Based only on De Morgan's plan (no dimensions were published), the gilded wood chest measured about 60 x 100 cm. One may assume that this chest was also in a poor state of preservation and was abandoned. Pectorals in this treasure include the names of Senwosret III and Amenemhat III; scarabs are inscribed with the names of Amenemhat III and Princess Mereret. Since the title king's wife appears on other scarabs in the collection, albeit without a personal name, one may conclude that Mereret was indeed a queen.

A complete documentation and a comprehensive study of the treasures is necessary; unfortunately, it cannot be undertaken within the framework of this publication. However, the following archaeological considerations merit discussion here.

1. De Morgan expressly describes the discovery of the first treasure as being in "une cavité creusée dans le rocher au pied du sarcophage C" and of the second treasure as "la cachette, bien que plus grande, était placée de la même manière que la première." One would assume that such cavities would be preserved in the *gebel* floor, but we were unable to find them, leading us to question the reliability of De Morgan's report.

2. Since the treasures were not found directly at the feet of the sarcophagi but outside in the corridor, the owners of the jewels remain somewhat doubtful. Despite the distance between the sarcophagus and the box, the connection between the first treasure and sarcophagus 9 seems reasonable. However, the second treasure, which contained the name of Mereret, was found in front of sarcophagus 7, which is inscribed with the name of Princess Senet-senebetes. It is possible that the second treasure actually belonged to Princess Senet-senebetes and that the scarabs with the name Mereret were gifts to the princess, perhaps from her mother. Another explanation is that the treasure did belong to Mereret and that it was buried in front of the sarcophagus of Princess Senet-senebetes for some unknown reason.

3. Both deposits contain solid pieces of jewelry and toilet articles that were presumably worn and used during the lifetimes of the women, as opposed to flimsier funerary jewelry.[232] On the other hand, the typical jars for ritual oils were missing, leading one to question if these deposits contained real grave goods for queens and princesses.

One must even consider the possibility that the two deposits De Morgan found in the subsidiary queens' gallery originally belonged to the T-shaped chamber and were buried under the floors of the two side chambers. It is also possible that the two treasures were special deposits, which for some reason had to be separated from the burials and placed close to the entrance (as in the tomb of Queen Weret II, see p. 127).

TOMB 5

(pls. 83b, 86A, 109)

The princess's burial chamber was vaulted. In the entranceway in front of the sarcophagus stood the canopic chest, which is probably now in the Egyptian Museum. The sarcophagus completely fills the chamber.

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[229] From De Morgan's plan (*Dahchour* I, p. 128), one would assume that the object was about 40 x 60 cm.

[230] One might assume that three other signs, which were not published by De Morgan, completed the name *sȝt-nsw Sȝ.t-Ḥwt-Ḥr* or king's daughter Sithathor and represented *sȝ*, *t*, and *Ḥwt-Ḥr*. Similar hieroglyphs were found in the south tomb of Queen Weret II, see here pp. 78, 118, 127.

[231] De Morgan, *Dahchour* I, pp. 64–72.

[232] Similar deposits were found in the tombs of Queen Weret II (see here pp. 127–33) and Sithathoryunit at Lahun (Brunton, *Lahun* I; Herbert E. Winlock, *The Treasure of Lahun* [New York, 1934]).

The Sarcophagus

(pls. 83b, 109)

The red granite sarcophagus has a 27 cm high base, which is too small for a panel decoration. The lid is curved, has rectangular ends, and has a projection on the underside that slides into a mortise on the upper surface of the box. Bits of gold foil (p. 123) remained in the bottom of the sarcophagus, indicating that it was used for a burial. Tomb robbers had lifted the front (south) end of the lid and propped it up with a block of granite, but the sarcophagus was not damaged.

Dimensions:	L. of box	250.5 cm
	W. of box	102.0 cm
	H. of box	90.0 cm
	L. of lid	246.0 cm
	W. of lid	98.3 cm
	H. of lid	27.0 cm

The Canopic Chest

(pl. 86A)

Egyptian Museum, Cairo JdE 30955, CG 4046
Bibliography: De Morgan, *Dahchour* I, p. 57; Reisner, *Canopics*, pp. 25–27, no. 4046, pl. 80; Schwab, "Sarkophage," pp. 109, 258, figs. 26–28

According to his plan on figure 128, De Morgan found the canopic chest in front of sarcophagus 5. He removed it to the Egyptian Museum, but it can no longer be definitively identified. For its identification with CG 4046, see pages 86–87.

The red granite box has a typical curved lid with rectangular ends. Unusual features were included on the box and its lid to ensure that the chest was securely closed, and they may be the result of modifications made in order to fit an inner wood canopic chest into an outer granite box. Two grooves were cut into the bottom of the granite chest in order to accommodate the wood battens on which the inner chest was mounted. The lid, which is unusually high and has a peculiar shape, had a deep square cut into its underside. This arrangement was apparently difficult to close, and the windowlike gap in front was sealed with two small granite blocks joined to the chest by means of a complicated locking system.[233]

Dimensions:	Box:	74.5 x 74.5 cm; H. 58.0 cm
	Lid:	74.5 x 74.5 cm; H. 28.0 cm

The Wood Canopic Box and Canopic Jars

Egyptian Museum, Cairo?
Bibliography: De Morgan, *Dahchour* I, p. 57, fig. 125

According to De Morgan, his canopic chest "no. 11" contained a wood box with gilded upper rims and edges. The gold foil was found loose in the debris of the chest. De Morgan's sketch of its inscription includes the title "king's daughter," but the name was destroyed. We discovered more gold foil near the southwest corner of the sarcophagus. The box had contained four uninscribed canopic jars that cannot be located in the Egyptian Museum, Cairo.

TOMB 6 (QUEEN MERERET?)

(pls. 83c–d, 110)

The chamber had a vaulted ceiling that was plastered with gypsum mortar. At the front end of the east wall, a niche was cut to house the canopic box. The sarcophagus sits in a 30 cm deep depression. Mud accumulated in the corridor when the main (queens') shaft was open and the lower gallery was flooded during a rainstorm. The sarcophagus and canopic chest still have muddy brown discolorations around the lower third of their exteriors.

The Sarcophagus

(pls. 83c–d, 110)

The lower part of the limestone sarcophagus has a simple rectangular shape with a slightly beveled lower edge. The lid is curved and has rectangular ends. At the north end of the lid's curved section, a deep hole of unknown purpose was cut in the center. The lid had two round handles on the north end and a large one on the south end, all of which were smashed off after the burial.

The robbers lifted the east side of the sarcophagus lid and propped it up with a limestone block, but could not maneuver under it; instead, they chiseled through the south wall of the sarcophagus, and probably pulled the body through the hole.

Dimensions:	L. of box	264.5 cm
	W. of box	108.0 cm
	H. of box	98.5 cm
	L. of lid	263.5 cm
	W. of lid	108.4 cm
	H. of lid	42.0 cm

The Canopic Chest

(pls. 83c–d, 110)

The limestone canopic chest has a nearly cubical bottom with slightly beveled lower edges. The lid is a flat slab with four round handles on opposite sides, all of which were smashed off after the box was closed.

Dimensions:	Box:	84 x 84.5 cm; H. 75 cm
	Lid:	85 x 85 cm; H. 20.5 cm

TOMB 7
(PRINCESS SENET-SENEBETES)

(pls. 84a, 111–12, 119)

The tomb of Princess Senet-senebetes is located on the south side of the west gallery. The partially preserved ceiling is shallow, flat, and still covered with plaster. The sarcophagus is slightly sunk into the *gebel* and surrounded by a crude limestone paving made of small slabs, which cover the lower part of the decoration. Tomb 7 is the only one with a separate niche for the canopic chest in the traditional place at the south end of the east side.

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[233] In order to properly document the details, a new study of the chest would be necessary.

The Sarcophagus

(pls. 84a, 111, 112A, 119)

Bibliography: De Morgan, *Dahchour* I, p. 56, fig. 123 (inscription)

The sarcophagus is made of hard, grayish limestone and has four decorative battens.[234] The base has a narrow ledge covered with a panel decoration; four gates were carved onto the east side and one on the north side. The panels on the west and south sides could be felt but not measured, because the sarcophagus is tightly wedged into the corner. The lid curves and has rectangular ends. On the north end are traces of a huge, round handle that was carefully removed.

Robbers used a lever to raise the north (front) end of the lid of the sarcophagus, which they propped up with a heavy block. The bottom of the lid and the top of the box remain undamaged, except for several cracks that might have occurred when the sarcophagus was moved into the tomb. The sarcophagus contained some remains of rotten wood, and two longish slivers were found on top of the rim.

At the north end of the east side is a pair of *udjat*-eyes, above which are two lines of sunken hieroglyphs with an offering formula for the princess: "A boon that the king gives and Ptah-Sokar-Osiris, an offering consisting of oxen and geese for the ka of the king's daughter Senet-senebetes, justified." Similarities in the type and style of the inscriptions suggest that sarcophagi 7 and 8 were made in the same workshop and that the burials were roughly contemporary.

Dimensions:	L.	of box	264.5 cm
	W.	of box	112.0 cm
	H.	of box	108.0 cm
	L.	of lid	260.0 cm
	W.	of lid	108.0 cm
	H.	of lid	45.5 cm

The Canopic Chest

(pl. 112B)

The hard limestone chest is nearly cubical, with a beveled lower front edge. The lid curves and has rectangular ends. On the bottom of the interior were a few scattered fragments of bones, potsherds, and limestone and plaster chips, which obviously did not belong to the original contents. In the sand in front (west) of the chest was a fragment of wood and some scattered gold foil, probably from a wood canopic box.

Dimensions:	Box:	93 x 94 cm; H. 78 cm
	Lid:	93 x 94 cm; H. 23.5 cm

TOMB 8 (PRINCESS MENET)

(pls. 84b, 113–14, 119)

Tomb 8 consists of an elongated niche on the north side of the west gallery. The ceiling had a shallow vault that was covered with plaster, remains of which can still be seen on the west and north walls. The sarcophagus sits in a 15 cm deep depression surrounded by a pavement of limestone slabs. Two niches in the side walls in front of the sarcophagus were probably used when the lid was closed. The canopic chest was placed against the east wall directly in front of the sarcophagus.

The title "associate of the white-crown-bearer" suggests that Menet was a queen, though the more explicit designation *ḥmt-nsw* is missing. According to Daniel Fouquet, who examined remains of the skeleton, she was only twenty-four to twenty-five years old when she died.[235] For the finds, see page 123.

The Sarcophagus

(pls. 84b, 113, 114A, 119)

Bibliography: De Morgan, *Dahchour* I, p. 56, fig. 122 (inscription)

The limestone sarcophagus stands on four decorative battens. The curved lid has rectangular ends. The base has a panel decoration with four gates on the east side and one gate on the south. The decoration on the north and west sides could be confirmed only by touch, but not measured. Drawing the sarcophagus and copying its inscription was difficult because of the narrow space between the box and the wall.

At the north end of the east side are two sunk relief *udjat*-eyes, and above them two lines with the offering formula in sunken hieroglyphs: "A boon that the king gives and Ptah-Sokar-Osiris, an offering consisting of oxen and geese for the ka of the king's daughter, the associate of the white-crown-bearer Menet, justified." Similarities in the type and style of the inscriptions suggest that sarcophagi 7 and 8 were carved in the same workshop and that the burials were roughly contemporary.

The robbers used a lever at the southwest corner to push aside the lid and open the sarcophagus, which was not damaged.

Dimensions:	L.	of box	258.5 cm
	W.	of box	108.0 cm
	H.	of box	99.4 cm
	L.	of lid	258.3 cm
	W.	of lid	107.0 cm
	H.	of lid	45.3 cm

The Canopic Chest

(pls. 84b, 114B)

The limestone canopic chest, which remains in the tomb, is nearly cubical. The curved lid has rectangular ends. Either the thieves or De Morgan threw off the lid.

Dimensions:	Box:	94.2 x 94.7 cm; H. 86.0 cm
	Lid:	96.2 x 96.5 cm; H. 24.5 cm

The Canopic Jars

Egyptian Museum, Cairo
Bibliography: Reisner, *Canopics*, p. 3, nos. 4005–6

Although he does not mention it, De Morgan apparently discovered the lower part of one and fragments of another alabaster canopic jar, one inscribed with the title *s3t-nswt ///*. For some unknown reason, entries 4005–6 in the *Catalogue Général* assign them to Menet, whose name does not appear on the recorded fragments.

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[234] The word "decorative" is used here to indicate that the heads of the battens are carved as if they protruded from the beveled lower edge of the sarcophagus. The battens do not run through the sarcophagus.

[235] De Morgan, *Dahchour* I, p. 151.

TOMB 9
(PRINCESS SITHATHOR?)

(pls. 84c–d, 86c, 115)

Tomb 9 is the first one on the north side of the east gallery. For its attribution to Princess Sithathor and the treasure that probably belonged to her, see page 70. Because it adjoins the huge cave produced for the T-shaped chamber, the surrounding *gebel* was weakened, the original ceiling had collapsed, and we had to reinforce the vast cavity with a strong brick wall. The sarcophagus stands directly on the *gebel*. De Morgan neither mentions a canopic chest nor includes one on his plan, which would make tomb 9 the only burial in the entire pyramid complex without canopic equipment. Since this would be extremely unusual, one would suspect that the chest was either reused in another burial (10, 11, or 12?), stolen by robbers, or transferred to the Egyptian Museum without being recorded by De Morgan.[236]

We found an offering deposit near the northeast corner of the sarcophagus that had been disregarded by the robbers and not noticed by De Morgan. About 75 cm south of the north end of the sarcophagus, a few bricks were laid and the space behind them filled with the offerings. On top of the *gebel* were spread leg bones and ribs of an ox together with parts of fowl. A dark discoloration in the sand could be the remains of bread. Above was a pile of sixty vessels consisting mostly of cups, with some bottles and a few other objects. The cups had been arranged in several stacks that had fallen to the side.[237] Some pieces include features known from pottery of the second half of the reign of Amenemhat III, suggesting that the burial has a later date than is implied by the scarab of Senwosret III found in the first treasure. White plaster that had flaked off the east wall covered the pottery.

At the south end of the west side, partially under the sarcophagus, remains of human bones were found along with other traces of the burial. The pieces certainly fell there when the robbers pulled the mummy through the southwest corner of the sarcophagus. For the finds, see pages 123–24.

The Sarcophagus

(pls. 84c–d, 115)

The undamaged limestone sarcophagus has a simple rectangular shape. On the top of the south side, an uneven grid was scratched into the surface; the pattern is similar to a game board but too rough to be of any use. The curved lid has rectangular ends. Two round handles have been smashed off at the south end. The tomb robbers shifted the lid of the sarcophagus to the side and opened the southwest corner. Apparently during a break in their activities, the robbers scratched a little figure of a mummy, which may depict the queen's coffin, into the surface between the handles.

On top of the south end of the curved lid, a rectangle measuring 60 x 87 cm is visible. The area remained white and clean, while the remainder of the lid is darkened by dirt. Inside the rectangle is a smaller one, 44 x 71 cm with irregular outlines. The rectangles and three additional semicircular spots are not necessarily man-made, but could have been produced if a decaying rectangular object discolored or ate into the stone, while at the same time protecting it from dirt. According to the dimensions, it cannot have been a canopic chest, which would have been more or less square, and it cannot have been the treasure box that was found by De Morgan, because the robbers who moved the lid certainly would have stolen it. Since the object was highly visible, it could not have had great value. Based on the stains it produced, one might think that it contained liquids. It is difficult to imagine a caustic substance that would cause such damage. Perhaps the box contained embalming material soaked with natron or a food offering.

Dimensions:	L.	of box	289.7 cm
	W.	of box	107.0 cm
	H.	of box	94.0 cm
	L.	of lid	283.5 cm
	W.	of lid	107.6 cm
	H.	of lid	37.0 cm

The Canopic Chest

(pl. 86c)

For the possibility that a limestone canopic chest now in the Egyptian Museum (JdE 30959, CG 4050) belongs to tomb 9, see page 87 and above.

TOMB 10

(pls. 85a, 116)

Tomb 10 is an elongated, rough cavity on the south end of the east gallery that belonged to an unidentified royal woman. The plaster that originally covered the walls and ceiling has flaked off. The canopic chest stands at the south end of the tomb, behind the sarcophagus, and must have been brought in first. Except for a part of the mandible, no bones survived. The teeth were worn down, indicating a person of some age.

The Sarcophagus

(pls. 85a, 116)

The hard, gray limestone sarcophagus is a simple rectangle with slightly beveled vertical edges, sharply beveled lower horizontal edges, and four decorative battens. The stone is so hard that the sculptors had difficulty hollowing out the interior. The sarcophagus's side walls were badly cracked at the south end, perhaps because of an accident during transport, and had to be held together with cramps set into the interior of each side. The lower northeast corner also broke off and was repaired with plaster. The curved lid has rectangular ends. On the north side, the remains of a large semicircular handle are visible. Near the south end, a groove was hacked into the sarcophagus, probably by the tomb robbers (see "The Canopic Chest" below). The robbers used a lever to pry the lid of the sarcophagus away from the wall, which was easily done by using the wall itself as a fulcrum. Afterward, they extracted the burial through the northwest corner.

Dimensions:	L.	of box	260.5 cm
	W.	of box	106.0 cm
	H.	of box	119.5 cm
	L.	of lid	260.0 cm
	W.	of lid	106.0 cm
	H.	of lid	32.0 cm

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[236] For a discussion of these possibilities, see here below and page 87.
[237] Allen, "Queens' Ware," pp. 40–41.

The Canopic Chest

(pls. 85a, 116)

The canopic chest is made of the same hard limestone as the sarcophagus. The lower part is a plain box. The curved lid has rectangular ends. Stone robbers started to cut the lid in two, but abandoned their work. Nothing is known about the contents of the chest.

Dimensions:	Box:	97 x 103.3 cm; H. 92 cm
	Lid:	97 x 98 cm; H. 24 cm

TOMB 11

(pls. 85b, d, 117)

Tomb 11 is a rough chamber on the north side of the east gallery. It once had a vault, which has now collapsed, but its shape is still discernible on the north wall. In front of the center and at the south end of the west side, we found some objects dropped or hidden by thieves.

Remains of a food offering, similar to the one found in tomb 9, were discovered between the sarcophagus and the wall at the north end of the east side. The leg bone of an ox and numerous destroyed vessels show that the deposit had been trampled and disturbed. We found a large irregular hole under the sarcophagus, but could not determine whether it belonged to the burial and once contained valuables or if it was a trial hole made by the thieves.

We found only a few well-preserved teeth, suggesting that the woman died young. She presumably lived during the reign of Amenemhat III, because his name appears on a turquoise scarab found in the tomb.

For the finds from this tomb, see pages 124–25.

The Sarcophagus

(pls. 85b, 117)

The bottom of the limestone sarcophagus is a simple box with beveled lower edges. The curved lid has rectangular ends. Three of the lid's four original handles were smashed off after the burial, left in the tomb, and used by the robbers to support the sarcophagus when they started to dig under it. The sarcophagus was opened by pushing the south end of the lid to the east, so that the burial could be removed from the southwest corner. The corner of the lid and the wall of the sarcophagus were damaged during this maneuver.

Dimensions:	L.	of box	265.0 cm
	W.	of box	107.7 cm
	H.	of box	103.5 cm
	L.	of lid	266.0 cm
	W.	of lid	108.0 cm
	H.	of lid	36.5 cm

The Canopic Chest and Jars

(pls. 85d, 117)

The bottom of the limestone canopic chest is a simple box, and the curved lid has rectangular ends. De Morgan found the canopic chest standing untouched in the corridor; it contained a wood chest and four uninscribed canopic jars.[238] The edges of the wood chest were originally gilded, but the gold foil fell off and was either so poorly preserved or perhaps intentionally mutilated that the name could not be read. The remains include the phrase "daughter of the king, Sit-///."[239]

Dimensions:	Box:	81.5 x 82 cm; H. 74 cm
	Lid:	81 x 82 cm; H. 22.5 cm

TOMB 12

(pls. 85c–d, 118)

Tomb 12 is the last cavity at the north end of the east gallery. The vaulted ceiling has partially collapsed. An enormous sarcophagus fills the chamber, while the canopic chest stands in the corridor, probably pushed there by the robbers, who needed space to open the sarcophagus. Under the sarcophagus is a huge cavity that either contained valuables or was cut by the robbers in their search for hidden treasure. We found a few human bones and gold foil dropped by the robbers under the east side of the sarcophagus. Also discovered was some pottery from the offering deposit, which was probably near the southeast corner. For the finds, see page 125.

The Sarcophagus

(pls. 85c–d, 118)

The large, heavy limestone sarcophagus has beveled lower edges on the south and west sides; the other edges are sharp. The interior has roughly finished dressing marks in several places along the south and west sides. On the exterior, the south and west sides were finished, but the east and north sides were only roughly dressed. The curved lid has rectangular ends. It was severely damaged by the inexpert removal of the two large, round handles on the south side, both of which were found in the debris. The handles on the north end are still attached.

Since the lid of the sarcophagus was too heavy to lift, the robbers chiseled a hole into its east side and pulled out the burial.

Dimensions:	L.	of box	253.5 cm
	W.	of box	104.7 cm
	H.	of box	114.5 cm
	L.	of lid	253.2 cm
	W.	of lid	106.3 cm
	H.	of lid	42.5 cm

The Canopic Chest

(pls. 85d, 118)

The limestone canopic chest is a plain box. Even the lid, usually curved, is flat. The bottom of the lid has a very rough depression, as if the sculptors had started to hollow it out. The lid had a square handle on either end, both of which were subsequently smashed off; one was found in the debris. Nothing is known about the contents of the chest.

Dimensions:	Box:	86 x 86 cm; H. 69 cm
	Lid:	88.5 x 86.3 cm; H. 22.8 cm

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[238] De Morgan, *Dahchour* I, p. 57, fig. 125. The present location of the jars is unknown.

[239] This gold foil is not identical to the gold foil of a lady Sit-Sobek (also from De Morgan's excavations at Dahshur) in the Egyptian Museum, Cairo (CG 28105), see Pierre Lacau, *Sarcophages antérieurs au Nouvel Empire*, vol. 2, Catalogue Général des Antiquités Égyptiennes du Musée du Caire (Cairo, 1906), p. 83.

De Morgan's East Pyramids

PYRAMID 5

The square plan of this structure, which was 13 x 13 m according to De Morgan, seems to be purely hypothetical. Only a 5 x 7 m irregular mass of bricks is included on De Morgan's plan, and no entrance or traces of a stone casing were recorded. This structure is definitely not a pyramid. Instead, it is likely that De Morgan misunderstood the subfoundation of the stone inner enclosure wall and believed it to be the remains of a mastaba (see "Pyramid 6," below).

PYRAMID 6

The shape and size (13 x 17 m) of De Morgan's mastaba (or pyramid) 6 is also purely hypothetical, because only an irregular mass of bricks is shown on his plan, and no entrance or traces of a stone casing were recorded. We must again conclude that De Morgan excavated the subfoundation of the stone inner enclosure wall and mistook it for a mastaba. Even if pyramids 5 and 6 do exist, they would overlap the inner enclosure wall, and thus cannot be correctly positioned on De Morgan's plan. Neither structure is discussed in De Morgan's text.

In 1998 an east-west trench with a north branch was excavated across the area between the foundations of the east inner and outer enclosure walls.[240] No traces of any structure were found, other than the remains of small, post–New Kingdom tombs.

The Three South Pyramids

Pyramids 7, 8, and 9 lie to the south of the king's pyramid, form a separate group, and seem to belong to the plan of the original pyramid complex. The early date was confirmed by the discovery of the burial chamber of pyramid 9, which must have been constructed before the king's pyramid was built, since its construction shaft is covered by his pyramid. Pyramids 7 and 8 do not seem to have actual burial chambers, only small underground facilities for the burial of statues, canopic outfits, or other ritual equipment, so we cannot be sure whether they were meant to be traditional pyramid tombs or cenotaphs. Pyramid 7 is the largest subsidiary pyramid in the complex and could have been the so-called ka pyramid of the king. Pyramids 8 and 9 are the same size and seem to form a unit.

PYRAMID 9
(QUEEN WERET II)

(figs. 21b–26; pls. 20b, 51A–B, 52C, 53–66)

Bibliography: Arnold and Oppenheim, "Senwosret III," pp. 50–51; Allen, "Queens' Ware," pp. 44–46

The Owner

The name of "*ḥmt-nswt ẖnmt-nfrt-ḥḏt Wrt, m3ᶜt-ḫrw*," "king's wife, the associate of the white-crown-bearer, Weret (II), justified" was found in the pyramid's burial chambers on a partially preserved canopic jar. More eloquent is a black hieratic inscription on a decayed wood board, which was found in the south tomb inside the entrance area of the shrine, on top of the stone blocking (p. 78; fig. 21b). The poor condition of the material hindered its documentation, but James Allen was able to transliterate and translate the text as follows:

Vertical: *ḫrt ḥmt-nswt ẖnmt-nfrt-ḥḏt Wrt qrst m*
Horizontal: *B3-nṯr(j)-ḫprw*
"Property of the king's wife, the associate of the white-crown-bearer, Weret (to be?) buried in the complex of *Ba-netjeri-kheperu*."

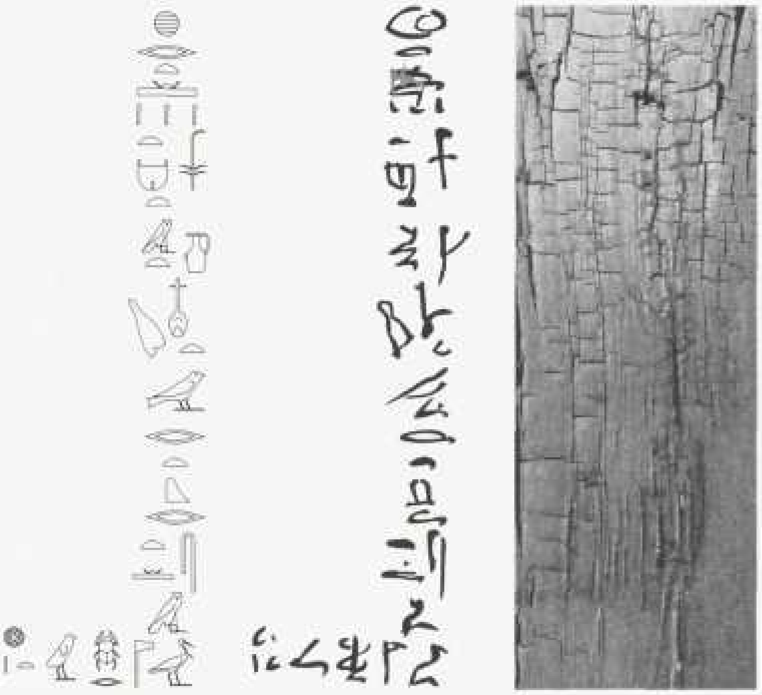

Fig. 21b. Wood board with hieratic inscription from the south tomb of Weret II.

Apparently written on a piece of furniture or a container when the queen's grave goods were assembled, the inscription is particularly important because it includes the previously unknown name of the pyramid complex of Senwosret III at Dahshur (p. 15).

One fragment of an inscription bearing part of Weret's name was found in the east chapel. The large dimensions and the location of Weret's tomb under the king's pyramid strongly suggest that Weret II was the main consort of Senwosret III. A number of other monuments also suggest that Queen Weret II was not only the main queen of Senwosret III, but possibly the mother of Amenemhat III (pp. 117–18). That the title "king's mother" has not been found at Dahshur would be explicable if the queen died before her son became king, that is, before year 19 of her husband, Senwosret III.

However, analysis of the queen's physical remains provides a strong argument against this theory. According to Bob Brier's preliminary analysis of her bones, Weret II must have died at the advanced age of at least seventy years; Roxie Walker estimates that she was fifty to sixty years old. According to these estimates, if Weret II died before Senwosret III's year 19, she would have been between forty and sixty years old when her husband became king. Since this assumption is improbable, Weret II must have died much later in the reign of Senwosret III, and the possibility that she was the mother of Amenemhat III can be dismissed.

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[240] The distance between the brick subfoundations of the two walls is 20.33 m, roughly corresponding to 39 cubits (20.475 m). Aboveground, the walls may have been slightly set back, so they were probably 40 cubits apart (21.00 m).

Because of the uncertainty of the date of her death and burial, we cannot establish the date of her birth and determine if she may have been the daughter of Senwosret II or of Amenemhat II. The presence in her jewelry deposit of two large amethyst scarabs inscribed with the names of Amenemhat II (pp. 132–33) may suggest that Weret II was the daughter of this king. However, it must be emphasized that the title "daughter of the king" was never found in connection with Weret II and she may have been of humble birth.

A small fragment with remains of the word or name "Aat" was found in the east chapel of pyramid 9, and could suggest that a lady named Aat was represented or mentioned in the chapel's decoration. It is possible that Weret had a (mother-daughter?) relationship with Queen Aat, a wife of Amenemhat III, whose tomb and burial were found in his Dahshur pyramid.[241] The word *ꜣꜥt* could also belong to a title.

The Superstructure

(pls. 53–56)

The location of pyramid 9 was miscalculated by De Morgan. Our survey shows that it is about 8 m farther to the east and that its west side aligns with the west side of the king's pyramid. Pyramids 8 and 9 were probably the same size, that is, considerably smaller than pyramid 7, though all three were equidistant from each other. One might assume that they were conceived as a unit and were functionally distinct from pyramid 7.

De Morgan does not mention pyramid 9 in his publication, probably because he did not find the shaft to its underground apartments, but his plan does indicate that he worked in the area. We therefore reexcavated most of the surface of the brick core of the pyramid in 1992, hoping to discover the "missing" shaft (see below).[242] The entire surface of the brick core is honeycombed by a series of about fifty test pits that were undoubtedly dug by De Morgan's workmen.

In 1997, another part of the casing foundation was cleared in the center of the east side, which furnished extensive information about how the pyramid was constructed. A foundation trench 2.8 m wide and 50–80 cm deep was dug along the four sides and partially filled with between one and three brick subfoundation courses 2.6 m wide. The bricks carried the 2.5–3.2 m wide limestone foundation of the casing. The core of the pyramid consisted of bricks, which were laid in close connection to the irregular rear sides of the limestone casing blocks. Up to seven brick courses are still preserved,[243] laid as headers from all four sides.

On the west side, two courses of large, carefully dressed limestone foundation blocks were found in position.[244] They were connected by numerous cramps, lengthwise in pairs when possible,[245] but also with occasional cross connections. This feature is rare in Middle Kingdom buildings, and indicates that superb masonry techniques were used. The upper courses have all disappeared. Because the dimensions varied, the sockets and cramps had to be individually cut; one cramp of soft, decayed wood remained in position. The measurements, in centimeters, are as follows.

L.	*W. at end*	*Thickness*
27	10.4	4
30	11.2	5–5-3
34	10.8–11	5
34	12.0	5
37	9.8, 11.0	5
41.5	10.6, 11.0	5

The brick core measures 22.65 m (east-west) x 22.75 m (north-south). The intended dimensions of the casing might have been 42 x 42 cubits (22.05 m) rather than 43 x 43 cubits (22.575 m), which would not allow enough space for the platform surrounding the casing.[246] In front of the east side of the pyramid, a substantial part of a casing block was found with an inclination of 60–61°. The height may have been 22.05 m.

The East Chapel

(pls. 52C, 54, 56a)

In November 1997, we opened the area in front of the center of the east side of the pyramid in order to search for an east chapel. Parts of two large limestone blocks from the foundation of the pyramid casing are still in position. A shallow step along the upper front edge of the block may indicate the point of contact with the back of the chapel's now-missing upper foundation blocks. The chapel's brick subfoundation was so heavily damaged by robbers that a clear outline is no longer recognizable, though the preserved rows of bricks leave no doubt that such a subfoundation existed. Found alone, without the architecture and relief fragments (see pp. 145–46), these brick remains would probably not suffice to confirm the existence of an east chapel, particularly since their placement does not strictly align with the east-west axis of the pyramid. A pile of granite fragments suggests the existence of a granite false door or perhaps an altar.[247]

The North Chapel

(pls. 51A–B, 53, 56b)

Slightly east of the center of the north side, a 6 m wide and 4.5 m deep breach opens in the brick core. Since the brick platform has a corresponding recess, it is likely that the area served as the foundation for a north chapel placed within the pyramid masonry (similar to pyramid 8, see p. 83). The chapel's facade must have been flush with the pyramid foot, because its subfoundation does not protrude in the front of the pyramid.

None of the chapel's architectural elements was found, but the existence of a decorated cult place is suggested by the 1992 discovery of a few small-scale fragments of low-raised, high-quality relief, depicting a *kheker*-frieze, stars, block borders, piles of offerings, and male figures. In front of the niche, De Morgan marked the findspot of three relief fragments ("nos. 1–3") on his plan.[248]

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[241] Arnold, *Amenemhet III*, pp. 43–45, 93. Since remains of the body of Queen Aat were found in her tomb, an identification of Weret II with Aat must be ruled out.

[242] Arnold and Oppenheim, "Senwosret III," pp. 50–51.

[243] Brick sizes are 10–11 x 18.5–20 x 38.5 cm.

[244] Blocks measured 38 x 84 x 134 cm, 38 x 150 x 190 cm, 38 x 146 x 148 cm, 56 x 134 x 216 cm, and 56 x 142 x 210 cm.

[245] Cramps set in pairs were also found in the casing of the king's pyramid.

[246] De Morgan's plan suggests that the structure was 21.65 x 23.75 m.

[247] Part of a granite false door inscribed for a Queen Weret was observed in 1996 in the area of the temple of Bastet at Bubastis. One would assume that the false door originated from a local ka chapel built for the queen.

In the center of the back of the niche, a small 1 x 1.08 m hole appeared in the *gebel*, similar to that in the north chapel of pyramid 8 (p. 83); its mouth was lined with bricks sitting on their long edges (brick-on-edge). The shaft peters out in the *gebel*, 1.5 m below the foundation platform. The hole could be a deposit pit damaged and enlarged by tomb robbers or by De Morgan's workmen. It is remarkable that in his description of the north chapel of the king, Vyse also reports "towards the north a hollow about 2 feet 8 inches wide [82 cm], which had been stopped up by a block, and had in some degree the appearance of an entrance to an inclined passage."[249]

The Underground Apartments

(figs. 22–26; pls. 57–66)

During the 1994 season we turned our attention to the possible location of the entrance to pyramid 9. We assumed that the shaft could only be in a location similar to that of pyramid 7, namely, within the inner enclosure wall and northeast of pyramid 9. Removal of huge mounds of sand began on October 3, and on October 22, the shaft appeared under 6 m of debris. The mouth of the shaft lay in the *gebel* and was covered by a 1 m thick layer of limestone chip and fragments from the destroyed pyramid casing; above was 3 m of sand and brick debris that had fallen down the pyramid slope. The shaft was reinforced with two courses of bricks 2.60 m below the surface, at a level 43.01 m above NN. Originally, the brick lining may have reached the surface at court level, which was at about 45.50 m above NN. Above the brick lining, the upper part of the shaft was filled with solidly packed *tafl*, broken bricks, and a few Middle Kingdom potsherds. The brick-lined section of the shaft was 1.03 x 2.83 m and filled with a dense mixture of sand, mud, and brick fragments, which had remained undisturbed since the tomb was robbed. The quality of the fill showed that the tomb had been desecrated, while the thick stone layers on top assured us that it had not been reentered since the late–New Kingdom destruction of the pyramid casing.

At the bottom of the shaft three openings appeared: 1) a passage to the south, still partially filled with its ancient brick blocking; 2) a passage to the north, similarly partially blocked; and 3) an inconspicuous opening in the center of the east wall with an intact brick blocking, which contained a small cache of jewelry (see pp. 127–33).

The South Tomb

(figs. 22–23; pls. 60, 63d, 66)

An unlined, shallow-vaulted corridor 1.05 m wide and 1.82 m high opens to the south of the shaft. The lower half of the entrance was still filled with a brick wall plastered with *muna*. The corridor behind was still blocked with the original brick fill. However, a tunnel had been dug through the upper part of the brick, a clear indication that tomb robbers had worked here. The first section of the brick fill ended 2.57 m behind the corridor entrance, and it was followed by a second section, which was plastered and whitewashed on its front face. Behind this "wall," the rest of the corridor was filled with disturbed, broken bricks.

At a distance of 16.3 m from the entrance, the corridor expands to an unlined turning chamber, 1.40 m wide and 2.40 m long, which also has a shallow-vaulted ceiling. From here, the corridor turns to the west for an additional 12 m. A clear vertical joint in the brick blocking was visible at the beginning of the west branch. From this point on, the brick fill was divided into two horizontal sections. At the bottom were one or two courses of bricks in their original position, covered with a layer of sand (fig. 22[1]). Above was an original fill of broken bricks (fig. 22[3]). The debris contained two large limestone oil lamps of the usual Middle Kingdom type. About 11 m from the turning chamber, a vertical brick face with whitewashed *muna* indicated another change in the stratification of the brick fill. Behind the whitewashed *muna*, the corridor continued for another three meters, and then opened into the limestone shrine, which lies to the south of the corridor. The brick fill of these last three meters consisted of the lower layer of undisturbed bricks (fig. 22[2]), which was covered by the broken bricks displaced by the robbers (fig. 22[4]).

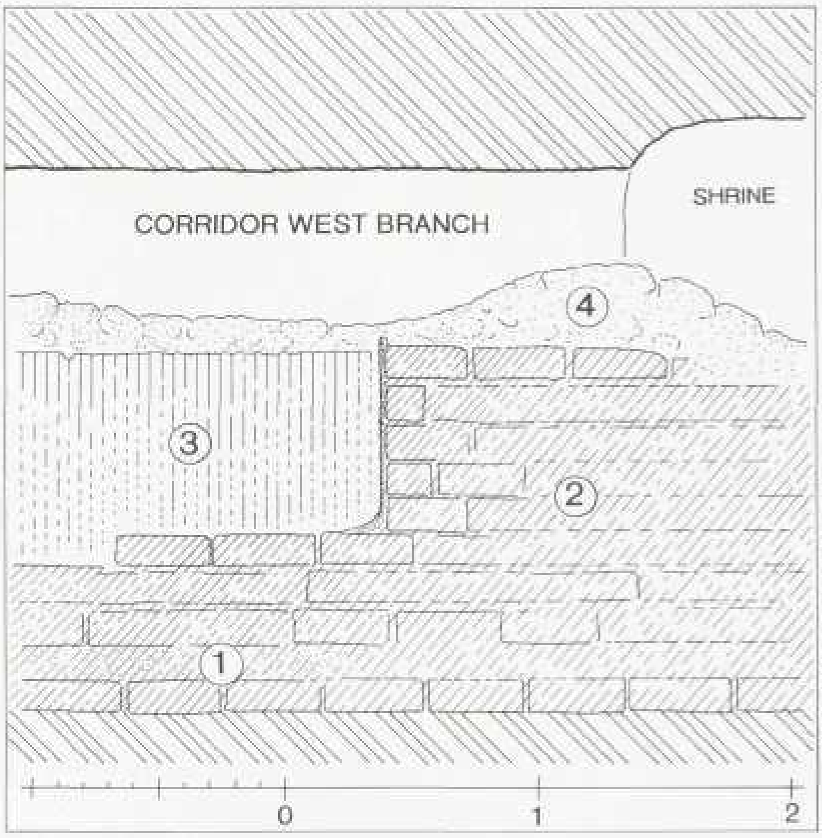

Fig. 22. South tomb of pyramid 9 (Weret II). East-west section through the brick fill of the west corridor. 1) Sand layer. 2) Original blocking. 3) Fill of broken bricks. 4) Fill disturbed by tomb robbers. Scale 1:30. Drawing D.A.

The horizontal and vertical divisions of the brick fill made it clear that the original blocking of the corridors was removed and replaced before the tomb was robbed. An attempt to reconstruct the sequence of the project is presented below.

In the northwest corner of the west passage, in front of its west wall, a 52 x 60 cm and 75 cm deep pit was found. The hole was filled with soil mixed with fine gypsum flakes and tiny wood splinters, suggesting that it had contained a wood chest. The box had been removed, but some of its plaster still adhered to the side walls of the pit. There were no finds to suggest the nature of the box's contents, and we could not deter-

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[248] These fragments may be identical with the three illustrated in De Morgan, *Dahchour* I, figs. 178–80.

[249] Vyse, *Gizeh*, p. 61.

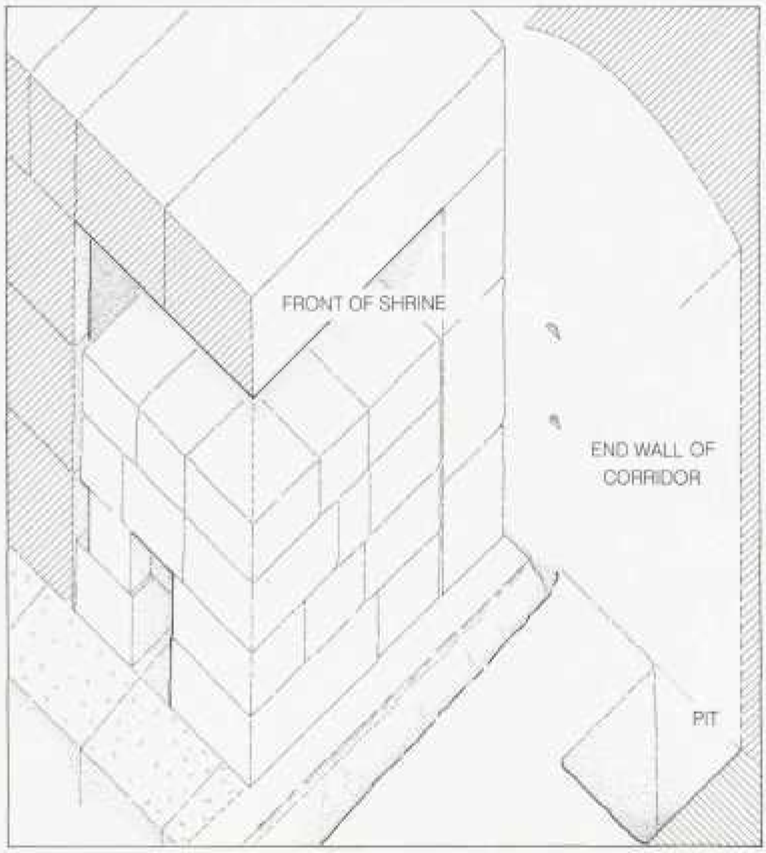

Fig. 23. Stone blocks filling the entrance to the shrine of the south tomb of pyramid 9 (Weret II). The east side of the shrine wall is cut away. Drawing D.A.

mine if it had been officially removed during the reopening of the corridor or if it had been stolen by the tomb robbers. It is possible that this pit was the original location of the jewelry deposit (p. 127).

At the south side of the west end, the corridor opens into a limestone shrine, which was built into a spacious cavity cut into the *gebel*. Bricks fill the space between the limestone roof and the rock vault. The shrine consists of an entrance area or door niche 1.67 m high, 1.20 m wide, and 1.05 m deep that leads into a small chamber, which is 1.37 m wide, 1.60 m deep, and 1.65 m high. The structure is composed of a foundation course of seven limestone slabs set one behind the other, three courses of wall blocks, and a ceiling formed by six beams. The doorframe between the two rooms is slightly curved. A rough door was subsequently cut into the south (back) wall of the inner chamber, not by tomb robbers but by masons, who then added a rock-cut chamber to the south (pls. 60, 66). The breach was hastily cut and the following 2.25 m long passage and the unlined chamber behind it only roughly dressed. A rock inclusion that could not be removed resulted in the irregular shape of the chamber, which is 2.10 x 2.30 m and 1.40 m high.

The entrance area and the small chamber of the limestone shrine were at one point completely blocked; only the rock-cut chamber behind seems to have been left open. The entrance area was carefully blocked with five courses of regular limestone slabs (fig. 23), the joints of which had been carefully sealed with mortar. The two uppermost courses had been removed when the shrine was reopened or robbed. The small limestone chamber behind was filled with bricks, which also blocked the opening in the rear (south) wall. The tomb robbers destroyed most of the brick fill in order to reach the cave behind the shrine. They also cut a hole into the floor slabs of the shrine, apparently in search of a hidden cavity. In and on top of the brick debris we found small pieces of the contents of the rock chamber, including potsherds, decayed wood (too thin to be part of a coffin), an inlaid gold ornament, faience, carnelian, and ivory inlays, and a few small hieroglyphs made of metal wire (pp. 126–27). An inscribed wood board was found on top of the stone blocking (p. 75; fig. 21b). All of the remains point to the presence of at least one or more finely ornamented wood objects, chests, or pieces of furniture. No evidence was found for the existence of a wood coffin. Small pieces of bone could be human, but are more likely remains of food offerings.

The shrine may have been built, altered, and robbed according to the following sequence.

1. The limestone shrine is completed and probably furnished with unidentified objects.

2. The shrine's entrance area is sealed with limestone blocks.

3. The west branch of the entrance corridor is filled with bricks. The turning chamber and the south branch of the corridor may have remained open. The extensive blocking suggests that the sealing of the south tomb was meant to be permanent.

4. The south tomb is reopened, apparently with the intention of transferring the contents of the limestone shrine into a new rock-cut chamber to the south or adding new objects.

5. To facilitate the construction work, the brick fill of the west branch of the entrance corridor is removed, except for the lowest courses. The brick debris is probably piled up in the turning chamber and the south branch of the entrance corridor.

6. The two uppermost courses of the shrine's stone blocking are removed, creating a narrow entrance that allows the workmen access to the interior. The brick fill of the corridor in front of the shrine is removed only to the extent necessary for work to be done inside it.

7. The contents of the limestone shrine, and possibly the wood chest in the pit in front of it, are temporarily removed.

8. A door is broken into the rear wall of the limestone shrine and a cavelike chamber cut from the *gebel*.

9. The rock-cut chamber is furnished either with the original contents of the shrine and/or additional items.

10. The interior of the limestone shrine is blocked with bricks, and the gap in the limestone blocking of the entrance area is probably filled with stones.

11. The area in front of the shrine is filled to the ceiling with broken bricks, and the front of the blocking is plastered and whitewashed at a point about 11 m from the turning chamber. The front part of the west branch of the entrance corridor remains open. It is not known either why or for how long the setting of the blocking was interrupted.

12. The remaining part of the west branch of the corridor is filled with the brick debris from the original blocking; the fill ends at the beginning of the west branch of the corridor. The front part of the fill is smeared over with mortar, and the work is interrupted for a second time.

13. The turning chamber and the south branch of the corridor are filled with broken bricks to a point 2.57 m from the entrance of the corridor. A third interruption of the work is again marked by a whitewashed *muna* smear.

14. The remaining north part of the entrance corridor is filled with bricks.

15. The shaft of the tomb is filled and remains undisturbed for perhaps two hundred years.

16. Tomb robbers tunnel through the upper brick fill of the corridor, open the limestone shrine, force their way into the rock-cut chamber, and steal and destroy its contents.

Complicating the situation is our lack of knowledge about the original contents of the shrine, the reason for the addition of the rock-cut chamber, and the nature of the objects contained in the enlarged structure. One can only surmise that the need for the cave was so pressing that even the risk of destroying the original structure and its precious contents did not deter the builders from undertaking the exhausting and complicated task of removing the corridor blocking. For the purpose of Queen Weret II's south tomb, see page 121.

The North Tomb

(fig. 24; pls. 57–59, 62, 63a–c, 64a–c, 65)

On the north side of the shaft, a somewhat irregularly vaulted corridor leads into the queen's burial chambers, which were placed under the king's pyramid. In contrast to the south tomb, the north tomb was masterfully constructed, presumably by the same accomplished builders who created Senwosret III's burial chambers.

The corridor is 22.5 m long, 0.80–1.05 m wide, and 1.75–2.23 m high. Discrepancies in width and height were caused by sandstone inclusions that could not be removed. At one point the corridor even bends around a rock protruding from the west side. The side walls of the corridor were apparently so unstable that some sections had to be lined with about fifteen courses of brick. The direction of the corridor also had to be slightly readjusted in order to reach the chambers, which were built by means of a construction shaft (see below).

Bricks laid five to a row in a header bond filled the corridor.[250] In order to decrease the humidity in the tomb, sand was used in place of mortar. A few upper courses of the brickwork were removed by tomb robbers.

The northernmost section of the corridor, which adjoins the funerary apartments, was lined with two courses of limestone blocks. The walls carry four roof blocks, the undersides of which were carved to create a vault, similar to the one in the king's entrance passage (p. 34). The walls were stained by the dirty hands of the robbers, especially near the entrance.

The north end of the vault abuts the lintel above the entrance into the antechamber. The lintel was not vaulted because it contains the upper sockets for a rectangular wood door, similar to those found between the antechamber and the crypt (fig. 24). The lower sockets were never cut, and the wood door wings were thus never installed.[251] The doorway has curved frames, and its lower half was blocked by three upright slabs.

The splendid antechamber is 2.08–2.09 x 2.63 m (4 x 5 cubits = 2.10 x 2.625 m) and 3.06 m high (6 cubits = 3.15 m). It is built with three courses of limestone blocks that carry three slightly vaulted ceiling beams. The huge floor slabs in the antechamber and the crypt are set obliquely, not parallel, to the walls. This discrepancy suggests that the orientation had to be slightly corrected during the construction, perhaps because there were problems connecting the chambers with the entrance corridor. A paving block more than 33 cm thick, which disappears under the antechamber's north wall, has two channels for the insertion of the thick ropes that must have been used to lower it into position.[252] The slab was certainly the last floor block laid in the antechamber.[253]

In the west wall, a door with curved frames opens into the crypt. The lintel protrudes 2.6–2.8 cm from the wall, a rare feature also observed in the antechamber of the royal tomb. The architrave has a pair of carefully cut upper door sockets, which apparently were never used, because neither wood wedges nor lower sockets were found. The reconstruction (fig. 24) shows how a wood socket (1) would have been wedged in with two wood blocks (2–3). When we first entered the tomb, the door was half-filled by two heavy, horizontal blocks with thickly plastered joints. The upper blocks had been pulled down by the robbers and thrown on the floor of the antechamber.

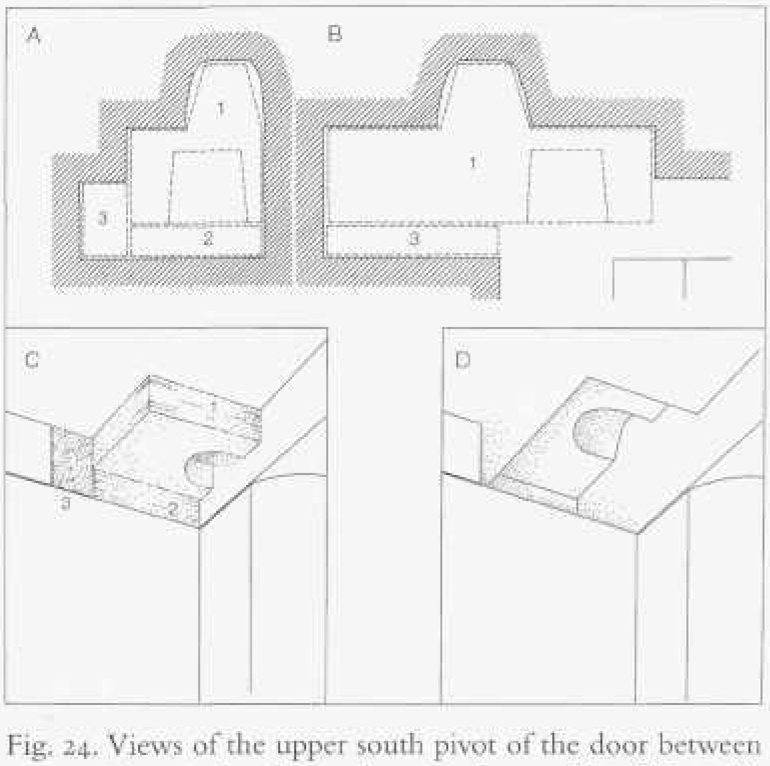

Fig. 24. Views of the upper south pivot of the door between the antechamber and crypt of pyramid 9 (Weret II). *A)* East-west section. *B)* South-north section. *C)* Reconstruction with wood pivot. *D)* Empty socket. The numbers refer to the different pieces of the pivot. Drawings D.A.

Behind the blocking lies the crypt, dominated by a marvelous granite sarcophagus. The crypt is 2.63–2.65 m wide (5 cubits = 2.625 m), 3.16–2.17 m deep, and 3.15 m high at the apex (6 cubits = 3.15 m). The chamber is built of three courses of blocks, which support four roof beams carved from below to form a magnificent vault. The beams have cracked under the weight of the construction shaft fill above. Particularly around the sarcophagus, the walls have an exceptionally large number of expertly fitted and smoothed patches, suggesting that a construction accident occurred. Huge floor slabs support the walls, and, as mentioned above, their direction implies that the chamber was originally planned with a slightly different orientation.

Along the west wall of the crypt stands the red granite sarcophagus (see below). The spaces between it and the north, west, and south walls were filled with thin limestone slabs.

Cut in the floor slabs in front of the sarcophagus are five nearly square depressions 14 x 14.5–15.5 cm and 17.5 x 14 cm and 3.3 cm deep, which are similar to those observed in other underground apartments at the site (pp. 35, 62–63). Because the depressions follow the oblique orientation of the slabs and not that of the walls, they must have been cut prior to the erection of the chamber walls and the delivery of the sarcophagus. The fifth, slightly larger depression in the center was filled and hidden by a patch stone, a strange alteration that only adds to the mystery of these puzzling sockets.

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[250] Brick sizes were 12 x 19 x 37–38 cm.

[251] The same phenomenon was observed in Senwosret III's tomb, see here p. 34.

[252] This procedure was quite common in Middle Kingdom building, see Arnold, *Building*, pp. 142–44, fig. 4.66.

[253] The walls were naturally built later.

In the south wall, an opening with carefully beveled edges leads into a passage 1.05 m wide, 1.69 m long, and 1.79 m high that joins the separate canopic chamber. The roof of the passage is flat. The canopic chamber is 1.42 x 3.00 m and 2.60 m high and was built with three courses of blocks that carry four flat ceiling beams. The floor slabs have a long crack that must be the result of uneven settling of the structure. Grave goods placed in front of the south and east walls probably caused their discoloration. The limestone chest and its flat lid still occupy the canopic niche in the north wall (see below). The front of the chest is covered by a limestone slab that once supported the two additional blocks used to seal the upper part of the niche. A huge 𓄤 sign painted black is cut into one of the upper slabs, while the lower surface of this slab has a black +.[254]

The Sarcophagus

(fig. 25; pls. 20b, 57, 59, 61, 63a–b, 64b, 65)

The red granite sarcophagus is, as one would expect, an exquisite example of hard-stone workmanship, with absolutely straight planes, sharp right angles, and fine edges. The bottom of the box is decorated with a panel pattern, of which only the east side with five gates and the north side can be seen. Reflecting its architectural prototypes, the door of the southernmost gate is represented in an open position (fig. 25). The two corner projections on the north and south ends of the east side have eight rows of five "windows." The interior of the sarcophagus is rough and the inside corners lack traces of core drilling.[255] A layer of darkish material on the bottom, as well as fragments of wood, black stains, bones, and beads found in and around the sarcophagus, provide ample evidence that a burial had taken place.

The lid, which was found upside down in front of the box, is curved and has rectangular ends. A simple locking device was installed on the underside of the lid, consisting of a projection that fit into corresponding sockets on the back (west) and the two short sides of the box's rim. The king's sarcophagus included the same features, along with two additional locking bolts. When Queen Weret's sarcophagus was closed, the lower front edge was badly chipped and had to be repaired with pinkish plaster that spilled onto areas of the box's front. A black liquid, probably some kind of oil, stained the inner southwest corner of the box and the center of the underside of the lid. The stains on the underside show that the oil was poured over the lid while it was balanced on the outer rim of the sarcophagus. Apparently the priest performing the ritual reached up high and misjudged the thickness of the lid.

The stains as well as the damaged edge indicate that the lid was not pushed horizontally across the box from front to back, but lowered over the front edge. Two carefully cut putlogs in the side walls of the chamber in front of the sarcophagus may have been used to facilitate the lifting and/or lowering of the sarcophagus lid (or the insertion of the wood coffin?).[256] During the 1996 season, the lid was repositioned on top of the box and sections of the front edge were restored by Anne Liégey.

Dimensions:	L. of box	238.0 cm
	W. of box	84.5 cm
	H. of box	81.5 cm
	L. of lid	233.0 cm
	W. of lid	79.0 cm
	H. of lid	28.0 cm
	Total H.	109.5 cm

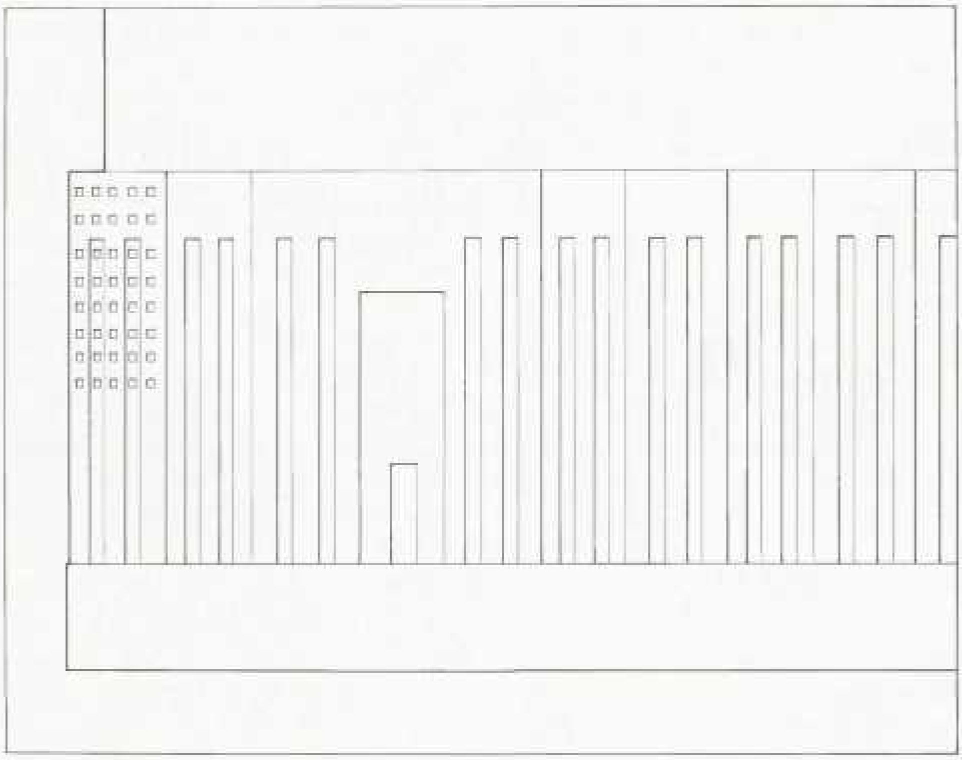

Fig. 25. Detail of the paneling on the front of the sarcophagus of Weret II (pyramid 9). Drawing R.V.

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[254] The 𓄤 sign certainly does not represent a subsection of a phyle, as do parallels in Old Kingdom royal crypts (Labrousse, *L'architecture*, p. 91, pl. 13), but is a positioning mark (ibid., pls. 90, 92, 94).

[255] This observation challenges a theory about the interior drilling of hard-stone sarcophagi, see Arnold, *Building*, pp. 50–51, fig. 2.29.

[256] In Old Kingdom royal crypts, the sarcophagus lids were apparently stored behind and flush with the rim of the box and pulled forward for closure, see Labrousse, *L'architecture*, pls. 13, 39, 60–62.

The Canopic Chest and Jar

(pls. 57, 59 inset, 63c, 64c)

The canopic chest is an astonishingly simple limestone container covered by a flat, square limestone slab. The round handles, which were smashed from the sides of the lid after the interment, were used as hammers by the tomb robbers and were found in the entrance corridor.

The chest was completely empty when found, but it must have originally contained four alabaster canopic jars. They probably stood in a wood box, the decayed boards of which may have been among the debris found in front of the niche. Of the four vessels and their lids, which probably were in the shape of human heads, only widely scattered pieces of the body of one vessel were recovered. The jar must have been dropped and broken by the robbers, who then abandoned it. Although well-made and polished, the vessel was not of the highest quality. Horizontal undulations in the alabaster suggest that the artist consciously chose stone with a particular pattern. The jar was restored from eight fragments, with about three or four pieces still missing. A panel consisting of four vertical text columns was somewhat roughly cut and the sunken hieroglyphs painted green. The first column is lost and the second and fourth are damaged, but enough is still preserved to distinguish that the jar was under the protection of the god Imset. The inscription ends with the titles of the queen, "the king's wife, the associate of the white-crown-bearer, Weret (II), justified."

Dimensions of canopic chest:

Box:	
Outside W.	85.6 x 85.8 cm
Inside W.	59 x 59.2 cm
Outside H.	72.8 cm
Inside depth	57 cm
Lid:	
W.	85.6 x 85.8 cm
H.	20 cm
Handles	L. 12 cm; Diam. 11.5 and 12 cm

Dimensions of canopic jar:

H.	31.1–31.3 cm
Diam. bottom	13.3 cm
Maximum Diam.	20.2 cm

The Burial of Queen Weret II and the Robbery of Her Tomb

(pls. 62a–b, 64a–c, 65d)

After the entombment of Queen Weret II in the north tomb, her sarcophagus was ceremoniously closed and the canopic niche walled up. About twenty-five vessels with offerings and other grave goods were arranged in front of the canopic niche, some of them in wood containers. In the crypt, some vessels probably leaked and have left round stains in front of the north wall. The grave goods also included fowl-shaped alabaster vessels and an alabaster water jar. The entrance to the crypt was walled up with large limestone blocks. About one hundred pottery vessels covered the entire floor of the antechamber.[257] The entrance to the antechamber was blocked with stones, and the long entrance corridor filled to the ceiling with brickwork.

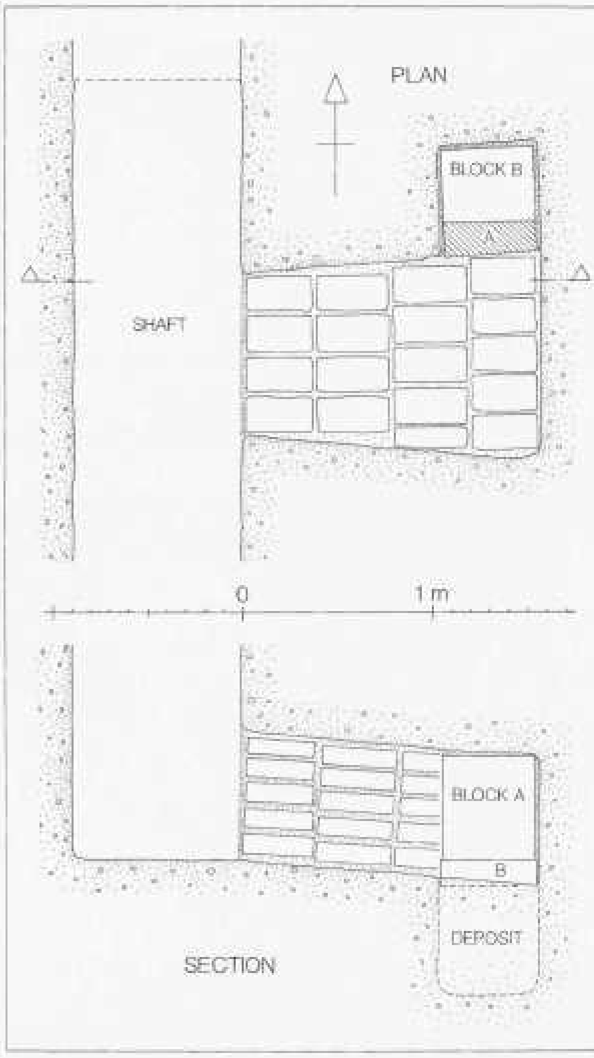

Fig. 26. Plan and east-west section through the jewelry deposit pit at the bottom of the shaft of pyramid 9 (Weret II). See pages 127–33. Scale 1:40. Drawing D.A.

Whereas subsequent construction work disturbed the south tomb, the north tomb remained untouched until robbers penetrated the tunnel. The robbers levered out the upper blocking stones of the two doorways; those at the entrance to the crypt were thrown into the antechamber, smashing many of the pots standing on the floor. In the crypt, the thieves flipped over the sarcophagus lid and left it upside down on the floor; several pots, parts of the fowl-shaped vessels, and the lid of an alabaster water jar were wedged under it. The robbers removed the wood coffin and dragged it into the connecting passage between the crypt and the canopic chamber, where they could more easily plunder its contents. Found on the floor of the passage were the powdered wood from the completely decayed coffin and a few beads that must have adorned the mummy. Parts of the queen's body were savagely flung around the rooms; the skull was found on top of the overturned lid, while the mandible rested under a pot in front of the lid. At the same time, the blocking slabs of the canopic niche were easily brought down, smashing the grave goods in front of it. The canopic vessels and the wood chest, which was probably gilded, were lifted out of the stone canopic chest. During this process, one of the four alabaster jars fell and broke. Satisfied with their booty, the robbers went through the tunnel, back to the shaft, and up to the surface. They dropped amazingly little on their way out; we found, for example, a fragment of the broken canopic jar. The shaft was forgotten and covered by limestone debris when the pyramid was dismantled after the New Kingdom.

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[257] For the pottery, see Allen, "Queens' Ware," pp. 44–46.

The robbers who opened the shaft and north tomb of pyramid 9 cannot have missed the entrance into the south tomb, and it is certain that both places were plundered at the same time. The date of the robbery remains uncertain, because the thieves did not leave behind oil lamps and water jars, which often give away the date of the crime. One might suggest, however, that Queen Weret's tomb was robbed at the same time as the king's tomb, that is, most probably in the Hyksos Period (p. 41).

The devastated tomb remained untouched until 1994, when the present excavators were confronted with the shocking evidence of this brutal crime. The frenzy with which the burial was looted bears witness not only to greed for treasure, but also to an indifferent or perhaps even hostile attitude toward the queen herself. Although the destruction occurred millennia ago, the ghosts of the robbers remained a palpable presence in the looted tomb.

For the finds, see pages 125–26. For the jewelry deposit, see pages 127–33.

PYRAMID 8 (QUEEN WERET I)

(fig. 27; pls. 48–50, 51D–G, 52A–B, D, 164)

Bibliography: De Morgan, *Dahchour* I, pp. 76–77, fig. 181

The Owner

According to several inscribed fragments found in 1997 and 1998 around the east and north chapels, the owner of pyramid 8 was the "princess, mistress of the two countries, praised, graceful and beloved, the wife and mother of the king, the associate of the white-crown-bearer, Weret (I)."

This Queen Weret is probably identical to the woman mentioned in a statue list preserved on a fragment of the Kahun papyri, which is dated to year 7 (probably of Senwosret III). The list mentions a "statue of the wife and mother of the king, the associate of the white-crown-bearer, Weret, *m3ᶜt-ḫrw*." The expression *m3ᶜt-ḫrw* suggests that Weret I had died in or before year 7.[258] A control note found on a block in the area of her pyramid at Dahshur, which mentions that her monument was being constructed in year 6 or 9, also points to the same suggestion.

Pyramid 8 seems to have contained only a canopic burial; no crypt or interment of a mummy has yet been discovered. One has to assume therefore that pyramid 8 was a cenotaph, and that Weret I was buried elsewhere, most probably in the pyramid complex of her husband. If her consort was Amenemhat II, her tomb would have been at Dahshur,[259] but if she was married to Senwosret II, she would have been buried at Lahun. A relief fragment with her name found in the pyramid temple of Senwosret II and another fragment discovered in the tomb of Princess Sithathoryunit[260] reveal that Weret I had a monument at Lahun, which supports the assumption that she was the wife of Senwosret II.

The Superstructure

(pls. 48–50, 51D–G, 52A–B, D)

Pyramid 8 is smaller than pyramid 7, but of the same size as pyramid 9. As can be seen from its brick subfoundation and many fragments of casing blocks, the pyramid was covered with limestone. Seven to eight courses of the brick core are still preserved above a 75 cm high fill of limestone chip and layers of desert sand.[261] The now-missing foundation blocks sat on three courses of subfoundation bricks,[262] which suggests that the foundation was about 2.10 m wide (4 cubits). The foundation blocks had been removed by stone robbers, but fragments, some of them quite large, still remained in the foundation and at the northeast corner. A few backing stones were found in position at the east end of the north side. From the measured features, we can estimate that the base line of the pyramid platform was 22.25 m, which would indicate space for a pyramid with a base of 42 cubits (22.05 m).[263] Some large fragments of the casing with the inclination of 61.5–62°, suggest a slope of 63°; the height of the pyramid (22.05 m) would thus be equal to the length of its base.

The East Chapel

(pls. 49a–b, 50, 51D–F, 52A–B, D, 164b)

Encouraged by the results of the excavation of Itakayet's east chapel (pyramid 3), we opened a large section in front of the center of the east side of the pyramid 8 core during the 1996 and 1997 seasons, and indeed found the brick subfoundation of the chapel. The structure was 3.98–4.11 m east-west and 5.70 m north-south, and was distinctly separated from the pyramid subfoundation by a wide gap. The bricks of the subfoundation were clearly hastily laid, as their arrangement is careless, and the brick types and sizes vary considerably. One might assume that the chapel was a later addition.

In 1997 we extended the section to the east and south in order to search for fragments of the chapel decoration that were mainly scattered to the southeast during the demolition of the pyramid and chapel. A considerable number of architectural elements and relief fragments were recovered. These elements are carefully worked, but are of lesser quality than the relief decoration of the chapels of pyramids 3, 4, and 9. Some fragments, including a huge torus and parts of papyrus-bundle columns, certainly did not belong to pyramid 8.

In the 1997 season, we were surprised by the discovery of most of the pointed top of a limestone obelisk, which was found to the north of the northeast corner of the east chapel; its base could not be located. The preserved section is 1.26 m high and 52.5 cm wide (1 cubit); the lower end of the preserved shaft widens slightly to 55 cm. From these dimensions, the total height can be estimated to have been about 2.625 m (5 cubits). One would assume that the obelisk had a pendant in the southeast, of which nothing is preserved. Pairs of obelisks are known to have adorned the entrances of private mastabas[264] and queens' pyramid chapels in the Sixth Dynasty[265] but have not been previously confirmed in the Middle Kingdom.

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[258] Following Claude Obsomer, *Sésostris Ier: Étude chronologique et historique du règne* (Brussels, 1995), pp. 427–34. See also William J. Murnane, *Ancient Egyptian Coregencies* (Chicago, 1977), pp. 267–72.

[259] The only burial of a queen at Amenemhat II's pyramid at Dahshur is located to the west and seems to date to a later period, see Peter Jánosi, "Keminub-eine Gemahlin Amenemhets II.?" in *Zwischen den Ewigkeiten: Festschrift Gertrud Thausing*, ed. Manfred Bietak (Vienna, 1994), pp. 94–99. One must therefore conclude that the queens' tombs of Amenemhat II are still hidden, perhaps along the south side of his poorly explored pyramid. The three double tombs west of Amenemhat II's pyramid contained the burials of a) Princess Ita and Princess Khnumet, b) Chancellor Amenhotep and Queen Keminub, and c) Princess Sithathor and Princess Ita-Weret.

[260] Peter Jánosi assumes that Weret I might be the owner of the subsidiary pyramid of Lahun (*Die Pyramidenanlagen der Königinnen* [Vienna, 1996], p. 62). However, Petrie could not find a burial chamber under that pyramid (Petrie, *Lahun* II, p. 28, pl. 16; Brunton, *Lahun* I, p. 20, pl. 15).

[261] Brick sizes are 11 x 20–21 x 40–41 cm.

[262] Brick sizes are 11–13 x 20–22 x 39–41 cm.

[263] De Morgan's plan (*Dahchour* I, fig. 105) suggests 21.4 x 23.8 m.

The North Chapel

(pls. 48, 49c–d, 50, 164a, c–d)

During the 1997 and 1998 seasons, we excavated the remains of the north chapel at the center of the north side of the pyramid. The foundation formed an irregularly shaped niche 4.30 m deep and 4.65–6.60 m wide within the brick core of the pyramid. Amazingly, the niche lacked a brick subfoundation, and instead had a stone foundation that sat directly on the *gebel* surface. This might indicate that when the bricklayers laid down the foundation of the pyramid, they were not aware of the plan to install a chapel. Remains of two courses of limestone backing stones, which supported the chapel's rear wall, are still preserved in the southwest and southeast corners of the niche. These blocks were apparently laid at the same time as the surrounding brickwork of the pyramid core.

Unfortunately, no traces of the chapel itself have been preserved, although continued study of the relief fragments may yield an estimate of its interior dimensions and the shape of its chamber(s). Parts of the inscribed tympana were found, indicating the room was 1.80–2.10 m wide. The relatively small dimensions of the chamber contrast with the size of the niche in the pyramid core, and suggest that 1.5 m thick stone masonry surrounded the chamber. In the center of the back wall was a 76 x 81 m and 1.35 m deep pit lined with bricks standing on end, similar to that in the north chapel of pyramid 9. The pit either had contained a foundation deposit,[266] pilfered when the stone robbers discovered it, or was meant to connect the offering place to the realm of the netherworld.

More pieces of the chapel decoration survive from this structure than from any of the others, probably because the destroyed chapel was quickly covered by the debris of pyramid 8 and the king's pyramid. The fragments were found spread over an area approximately 5 x 7 m wide in front of the niche.[267] Some architectural elements were also present, namely, pieces of cavetto cornices, triple corner tori, horizontal tori, a fragment of a granite false door, and parts of curved doorframes. The distinct niche and the lack of a brick platform in front of the north side suggest that the chapel was not built in front of the pyramid with its side walls adjoining the casing, but was placed within the casing and the core. The front edge of the chapel was probably flush with the foot of the pyramid, while the upper sections emerged from the sloping pyramid face. A freestanding chapel, such as the one built to the east, would not fit into the 4.20 m wide space between pyramid 8 and the inner enclosure wall.

The reconstruction of the shape, and to some extent also the size, of the chapel is facilitated by several preserved architectural elements. The facade was certainly topped by a cavetto cornice rising above a horizontal ledge that was in turn supported by a torus; such an arrangement is common in the structures of Senwosret III's complex. The outer corners were articulated with triple tori. The door had a 46 cm high, slightly protruding lintel that was decorated with a winged disk and below it a single line of text. The door had curved frames. The interior of the chapel had a slightly vaulted ceiling adorned with stars.

The Underground Apartments

(fig. 27)

De Morgan found a 1.3 x 1.5 m and 11 m deep shaft in the center of the pyramid; its mouth was reinforced with a brick lining 62 cm thick. Halfway down the south wall, he found an empty, unlined niche sealed by a brick wall. On the south side of the bottom of the shaft, he discovered a limestone canopic shrine still sealed with the original limestone blocking. Inside, De Morgan found a granite canopic chest about 60 x 60 x 67.5 cm containing four alabaster canopic jars.[268] He does not mention whether the jars contained anything, but since the niche was sealed, one would assume that they did, even if the body was elsewhere. The canopic shrine was flanked by shallow niches on the east and west walls. The canopic chest was apparently transferred to the Egyptian Museum, but the careless entries of the Dahshur finds in the *Journal d'Entrée* prevent its identification.[269] Since access to the shaft was blocked after the construction of the pyramid, the canopic chest must have been buried first.[270]

In July 1995 we reexcavated the shaft and saw that even the limestone shrine in the canopic niche had been destroyed by De Morgan's workmen, who had apparently searched for a hidden burial. Unaware of the possibility that the canopic equipment and the sarcophagus can be placed quite far apart in the later Twelfth Dynasty, De Morgan tried assiduously to locate a burial chamber under the pyramid. From the bottom of the central shaft, he cut three sloping tunnels: a 25 m long tunnel to the north, in the direction of the king's pyramid, and corridors to the east and west. De Morgan's workmen later filled all three corridors with debris from a vertical continuation of the central shaft. In 1995 we cleared the 25 m long north tunnel to its end, but discontinued the work in the main shaft and parts of the two sloping passages when we realized that we were reexcavating corridors cut by De Morgan's workmen.

The separation of the canopic deposit and the sarcophagus is a typical feature of the time of Amenemhat III, though an underground connection between the two parts of the burial is nevertheless the rule. Using pyramid 9 as a parallel, the sarcophagus of Queen Weret I would certainly be located under the king's pyramid. Since the shaft in the center of pyramid 8 does not connect with a north tomb, one would have to assume that if a burial chamber existed it had a separate entrance shaft, either within the inner pyramid court or off an as yet undiscovered interior corridor system comparable to that in the pyramid of Amenemhat III at Dahshur.[271]

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[264] For example, Seshemnefer IV at Giza, see H. Junker, *Giza*, vol. 11 (Vienna, 1953), pp. 110–11, pl. 1.

[265] Gustave Jéquier, *Les pyramides des reines Neit et Apouit* (Cairo, 1933), p. 4, fig. 1, p. 43, fig. 24.

[266] A fragment of an animal bone was found in the pit.

[267] The great number of fragments permits the reconstruction of the decorative program of the chapel, see here pp. 145–46. The program was similar to that of the north chapel of the pyramid of Senwosret I at Lisht, see Arnold, *Senwosret I*, vol. 1, pp. 76–83, pls. 49–51, 53–56.

[268] De Morgan, *Dahchour* I, p. 76, fig. 181.

[269] For the problems of identifying the canopic equipment from Dahshur in the Egyptian Museum, see here pp. 86–87.

[270] This may indicate that Queen Weret I died before her pyramid was built.

[271] The pyramid of Amenemhat III at Dahshur contains two important queens' tombs and some secondary burials, which not only had a separate entrance from the west side of the pyramid but were also connected to each other and to the tomb of the king by long galleries (Arnold, *Amenemhet III*, pls. 50–52). That a similar system exists under the pyramid of Senwosret III cannot be completely ruled out.

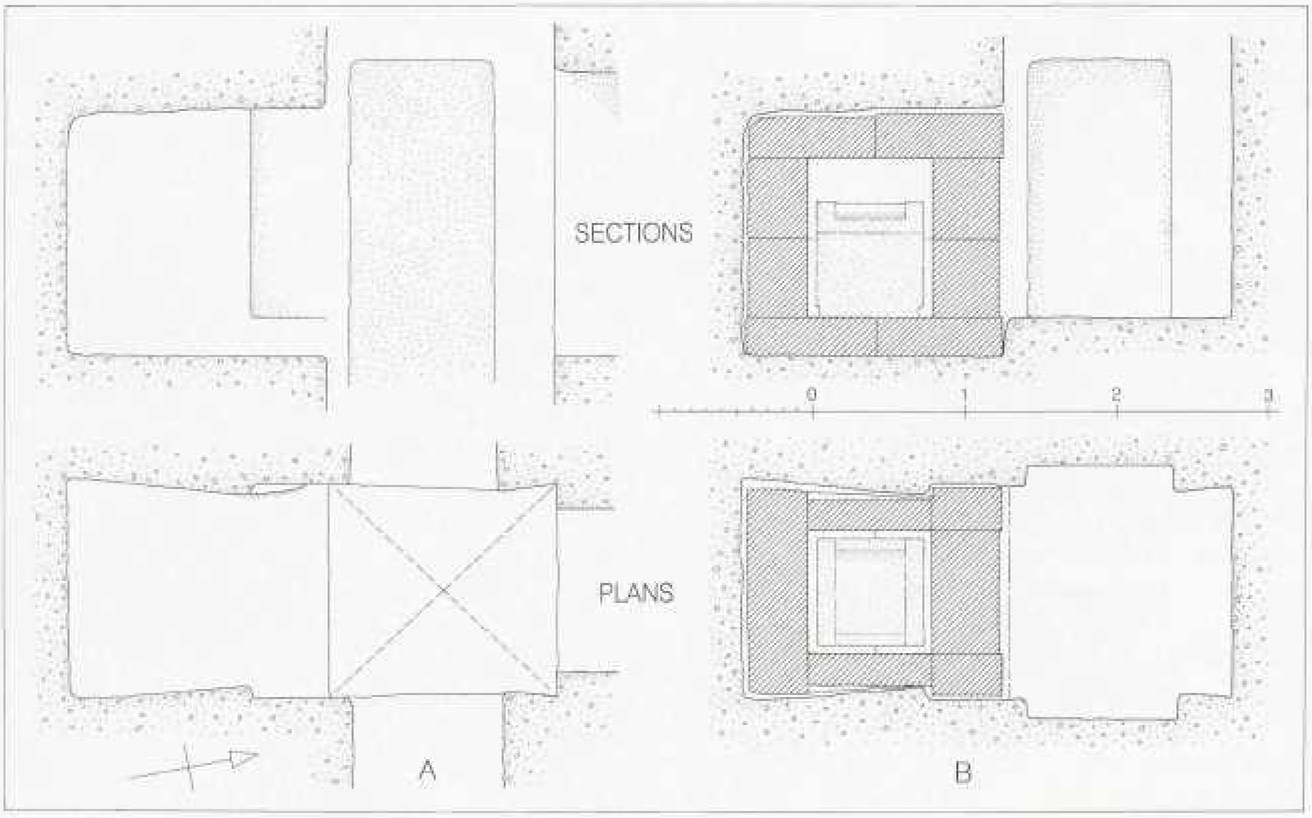

Fig. 27. Shaft and canopic shrine of pyramid 8 (Weret I). *A)* Present state. *B)* Reconstruction of the shrine as found in 1894. Upper drawings are sections, lower drawings are plans. Scale 1:50. Drawings D.A.

To explore this possibility, we cleared parts of the inner pyramid court in squares L/24 and M/24–25 in 1995 and 1998, but did not find a shaft. Since our work near the south slope of the pyramid was constricted by high debris mounds, this negative result might not be definitive, and the shaft could still be somewhere in the area. On the other hand, we must consider the possibility that the queen was buried elsewhere, and that a true tomb was never built here. This possibility increases with the consideration that during the Middle Kingdom, the king's mother apparently had to be buried close to her husband (p. 82). Since statues belonging to Weret I were placed in Senwosret II's pyramid complex at Lahun, one might consider that he was her husband and that this was the location of her actual burial place.[272]

PYRAMID 7

(fig. 28; pls. 44–47A–B, 48)

Bibliography: De Morgan, *Dahchour* I, pp. 75–77, figs. 177, 181

The Owner

Several considerations suggest that the structure was not a queen's pyramid, but rather the king's satellite or so-called ka pyramid. The location near the southeast corner of the king's pyramid is similar to the position of Old Kingdom satellite pyramids.[273] Furthermore, pyramid 7 has a base length of 50 cubits, making it larger than the other subsidiary pyramids in the complex and one-fourth the size of the king's pyramid.[274] Its underground chamber was not large enough to accommodate a burial, but was more like a small cenotaph or shrine. Finally, pyramid 7 lacked the east and north chapels that adjoin at least five of the queens' pyramids. Still, one cannot completely rule out the possibility that pyramid 7 is connected to burial chambers somewhere under the pyramid of Senwosret III, and that it did indeed belong to a royal woman.

The Superstructure

(fig. 28; pls. 46a–b, 47A–B, 48)

The largest of all the secondary monuments in the complex, pyramid 7 is located opposite the east end of the south side of the king's pyramid. According to remains found on its east side, pyramid 7 was originally cased with limestone.

In order to locate and measure the structure, we excavated the following areas: the northeast and southwest corners in 1993 (fig. 28), the center of the east side in 1997, and the north side in 1997 and 1998. A brick subfoundation supported a stone foundation. The foundation platform measured about 27.7 x 27.7 m, sufficient to carry a pyramid of 50 x 50 cubits (26.25 m). Fragments suggest an angle of 63° and a height of 27.30 m.

At the northeast corner, two 58.5–61 cm high blocks from the innermost foundation course are preserved. At the southwest corner, one part of a 42.5 cm high foundation block remains in situ. Here the brick subfoundation and limestone foundation sit in a 69 cm deep trench dug into the *gebel*, which was afterward smeared with *muna*. The foundation of the pyra-

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[272] Borchardt, "Papyrusfund," p. 91; Brunton, *Lahun* I, pp. 20–21, pl. 15.

[273] It must be admitted, however, that Old Kingdom ka pyramids are located at the south end of the east side (south of the pyramid temple), whereas pyramid 7 is placed at the east end of the south side.

[274] However, one can argue that at Lisht, the pyramid of Queen Neferu was larger than the ka pyramid of Senwosret I (Arnold, *Senwosret I*, vol. 3, pl. 1).

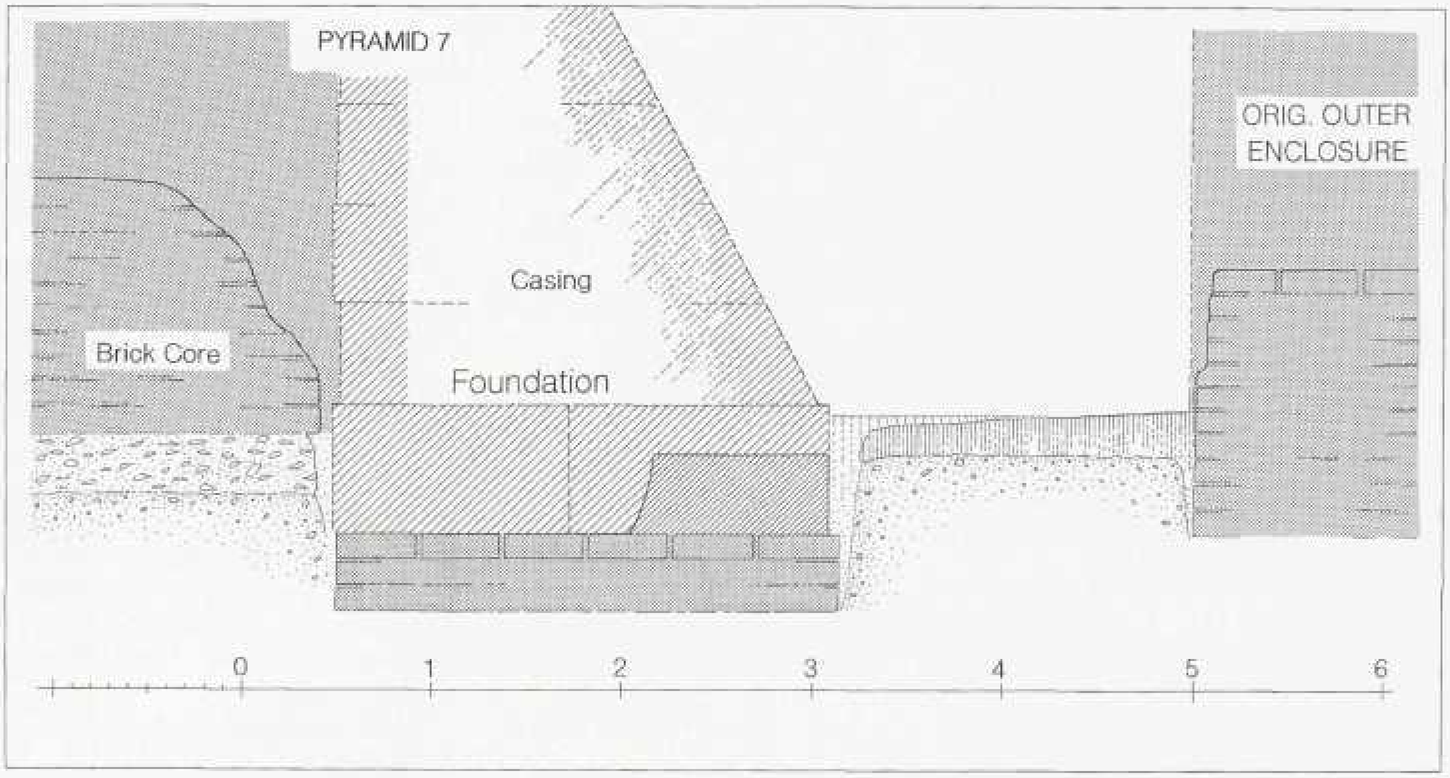

Fig. 28. North-south section through the casing of pyramid 7 and the original south outer enclosure wall, facing east. Scale 1:40. Drawing D.A.

mid is only 1.95 m away from the original outer enclosure wall to the south and 3 m from the inner enclosure wall, resulting in quite narrow passages on both sides.

At the center of the east side, the approximately 2.8 m wide foundation trench had three courses of brick.[275] Some of the huge limestone foundation blocks still stand in the trench, along with the remains of the 45 cm high upper course that carried the casing (at 45.85 m above NN). Along the front edge of the top surface of the foundation blocks, a fine incised line suggests the location of the base line of the pyramid, which actually sat on top of the upper course.

The subfoundation and pyramid core bricks and the limestone foundation blocks were not separated by an even, vertical joint, but were interlocked. Because the foundation blocks were so large, the cramps were arranged in pairs, and one socket still contained the remains of rotten wood. Five cramp sockets are preserved in the 55 cm thick lower limestone foundation course on the pyramid's east side. The dimensions of the sockets are (in centimeters):

L.	*W. at ends*	*W. at center*	*Th.*
38.0	10.5–11	?	7.5
38.0	10.0	8.0	8.0
21.0	10.5	4.5	9.0
21.0	9.0	5.0	6.5
16.0	9.7	5.5	6.0

In 1996 and 1997 we opened trenches in front of the east side of the pyramid in order to locate the cult chapel but did not find either a foundation for such a structure or architectural elements. Therefore, it appears that pyramid 7 lacked an east chapel. A test trench dug in 1998 along the north side of the brick core of pyramid 7 determined that no recess for a north chapel existed.

The Underground Apartments

(pls. 44–45, 46c–d)

On March 14, 1894, De Morgan found a square shaft 20 m off the northeast corner of pyramid 7, which we now know is within the inner court; the shaft was reopened in July 1995. The shaft is square, only 1.30 m wide,[276] and over 10 m deep. It was lined with a sturdy 1.05 m thick brick wall, the upper part of which is now missing. The highest preserved section of the brick lining is 10.45 m above the bottom of the shaft (44.21 m above NN). A corridor opens to the south at the bottom of the shaft (at 33.76 m above NN); our excavation did not detect another opening (see below).

The entrance into the corridor has the extraordinary height of 3 m, because the passage had originally been started farther down. When the miners reached a mass of impenetrable sandstone inclusions, they gave up and started another corridor a meter higher. The north-south corridor is 22 m long, and 4 m before it ends an east-west corridor branches off it. Both passages contain large quantities of rough fieldstones and limestone debris, piled up against one of the side walls. The north-south corridor was originally planned to be 2.30 m longer but only the upper half (82 cm high and 82 cm wide) of this extension was ever dug; the lower part of the rock was left standing. We found the extension tightly packed with broken limestone pieces. Since the fill contained two fragments of the doorframe of the shrine demolished by De Morgan (see below), we must assume that the blocking is the result of De Morgan's work. On the two doorframe fragments De Morgan or one of his assistants made a pencil sketch of what seems to be the entrance area of the underground chambers of pyramid 4.

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[275] Brick sizes are 11.5–13 x 18.5–20.5 x 39–41 cm.

[276] The shaft is too small for lowering a coffin or sarcophagus.

Before De Morgan, the west passage reached the opening into a limestone chamber or shrine to the south after 9 m. The shrine consisted of a deep entrance area, followed by a square main chamber with a flat roof. The doorframe to the chamber was slightly curved, a common feature in the pyramid complex of Senwosret III. In this instance, De Morgan's frantic search for treasure was not confined to cutting holes in the wall and floor slabs; here he had the chamber completely smashed and the debris carefully moved out of the rock cave. His destruction yielded nothing. The *gebel* floor of the empty cave has a pit 2.08–2.28 x 3.40 m and 30 cm deep, which originally housed the chapel foundation.

The limestone shrine belongs to a group of similar late Twelfth Dynasty installations, found not only under pyramid 9 (Weret II), but also under the pyramid of Amenemhat III at Dahshur (p. 121). Three similar chambers remain in Amenemhat III's pyramid,[277] while a fourth one was removed in antiquity.[278] A series of six smaller chambers lacked an entrance area.[279]

Since the measurements on De Morgan's plans are generally unreliable, we can use only the dimensions of the cave to estimate that the inner chamber of the shrine of pyramid 7 was about 1.4 x 1.5 m (pls. 44–45). As was the case with the parallels quoted above, the shrine was too small to accommodate a sarcophagus or coffin.

The quantity of limestone debris piled along the walls of the west and south corridors far surpasses the amount of stone needed to build the shrine, suggesting an additional source. One may suspect that the west branch of the corridor was originally blocked and the south branch left empty.[280] Tomb robbers intent on reaching the shrine apparently removed the north half of the blocking in the west corridor and deposited the material along the east side of the south corridor. De Morgan's men probably added the debris of the smashed limestone shrine to these piles.

The considerable mass of limestone used to block the corridor strongly suggests that the shrine contained objects in need of protection. This theory is not contradicted by the fact that De Morgan found nothing in the shrine in 1894, but merely assumes that the thieves had done a thorough job. The nature of the shrine's contents therefore remains a mystery. It probably did not contain pottery, plain wood, food offerings, or similar material, since in their haste to complete their work the thieves would have left such valueless goods behind, and the remnants would have stayed in the area. The width of the now half-blocked corridor would also have prevented the removal of a larger object.

Comparison with the tomb of Queen Weret II (pl. 60) shows that the south shrine of pyramid 7 represents only half of an ideal tomb system. Speculation arose among the present excavators that the missing north tomb, which would contain the actual burial, could lie under the king's pyramid and have its access through a separate shaft. We searched for such a shaft in the inner pyramid court and can exclude the possibility that it exists between the court's southeast corner and 5 m west of the southeast corner of the king's pyramid. The area further to the west has not been explored. It is therefore likely that pyramid 7 was not a separate queen's tomb with a burial but the satellite pyramid for the king himself, containing only a small shrine rather than full-size burial apartments.[281]

CANOPIC MATERIAL FROM THE PYRAMID COMPLEX OF SENWOSRET III IN THE EGYPTIAN MUSEUM, CAIRO

(pl. 86)

Bibliography: Reisner, *Canopics*; for CG numbers see below. In general see Schwab, "Sarkophage," pp. 90–92; Aidan Dodson, *The Canopic Equipment of the Kings of Egypt* (London, 1994), pp. 16–36; Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt: Equipping the Dead for Eternity* (London, 1998), pp. 278–81

Included in the huge collection of canopic material in the Egyptian Museum, Cairo,[282] are at least three canopic chests and twenty-one canopic jars that originate from De Morgan's excavations at the pyramid complex of Senwosret III. Their precise findspots can be determined in only a few cases, since no information is available other than vague pencil notes on the objects, such as "Dahchour, North Pyramid" or "Dahchour, 1894." Some objects can be connected to the pyramid complex of Senwosret III, while others, which bear the label "Dahchour, 1894," *may* originate from the pyramid complex, but could have been found in the north mastaba field.

De Morgan apparently brought three granite canopic chests and one limestone one to the Egyptian Museum. It is especially regrettable that the granite canopic chest with the four uninscribed alabaster jars found in pyramid 8 (Queen Weret I) can no longer be identified. In addition, one of the three granite chests cannot be located at all in the museum's collection.

The following list omits all objects that probably originate from the north mastaba field, and are therefore irrelevant to this study.

Canopic Chest

(For details see p. 71; pl. 86A)
Egyptian Museum, Cairo JdE 30955, CG 4046
Bibliography: De Morgan, *Dahchour* I, p. 57; Reisner, *Canopics*, pp. 25–27, pl. 80 upper; Schwab, "Sarkophage," pp. 109, 258, figs. 26–28

According to Reisner, chest 4046 belonged to "Galerie des Princesses, sarcophagus 11." However, the box cannot have originated from tomb 11, since a canopic chest still stands in front of this sarcophagus. It is more likely that the chest belonged to tomb 5, which has a sarcophagus of red granite.[283] De Morgan's plan[284] clearly shows a chest in front of sarcophagus 5, but it is no longer in position, and therefore must have been removed and sent to Cairo. Otherwise, chest 4046 would be the only one that could originate from the canopic equipment of Queen Weret I (pyramid 8).

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[277] Numbers S 5, 15, 18, interior 1.33 x 1.57 m, Arnold, *Amenemhet III*, pls. 37, 55–57.

[278] Number S 16, interior 1.08 x 1.80 m, Arnold, *Amenemhet III*, pls. 37, 58.

[279] Numbers S 8–13, interior 1.05 x 1.05 m, see Arnold, *Amenemhet III*, pls. 24–25, 26a–c, 27, 55–58.

[280] Similar to the blocking of the corridors in front of the ka chapels of the pyramid of Amenemhat III at Dahshur, see Arnold, *Amenemhet III*, pls. 25c, 26c, 27a–b, 55 (S3), 57, 71.

[281] The only other Twelfth Dynasty satellite pyramid belongs to the pyramid complex of Senwosret I at Lisht. The nature of the so-called queen's pyramid in the complex of Senwosret II at Lahun is debatable.

[282] As of 1967, the collection held 797 canopic chests and vessels!

[283] A sarcophagus and its canopic chest are generally made of the same material.

[284] De Morgan, *Dahchour* I, fig. 128.

Canopic Chest

(For details see pp. 66–67; pl. 86B)
Egyptian Museum, Cairo JdE 30956, CG 4047
Bibliography: Reisner, *Canopics*, p. 28, pl. 80 lower; Schwab, "Sarkophage," p. 254, pl. 40; Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt: Equipping the Dead for Eternity* (London, 1998), p. 280, fig. 406

The box has a typical curved lid with rectangular ends. The red granite chest was closed by sliding the lid into grooves carved into the rim of the box. According to Reisner, the chest originates from tomb 3, which we now know belonged to Princess Itakayet. The chest may have contained the two jars Cairo CG 4023–24.

Canopic Chest

(For details see p. 68; pl. 86C)
Egyptian Museum, Cairo JdE 30959, CG 4050
Bibliography: Reisner, *Canopics*, p. 33, pl. 79 lower; Schwab, "Sarkophage," p. 256, pl. 41

The limestone box has a slightly projecting ledge around the lower edge and a typical curved lid with rectangular ends. Most spectacular is the fine, low-relief mat pattern that decorates the corners and the juncture between box and lid. This decoration is not unusual for stone sarcophagi of the Twelfth Dynasty[285] but is unique on a canopic chest. The six known parallels on sarcophagi all date to the reign of Amenemhat III or later, suggesting a similar date for chest 4050 and the burial to which it belonged.

According to Reisner, chest 4050 came from the "Galerie des Princesses," according to De Morgan from "dans la galerie inférieure."[286] If we assign chest 4046 to tomb 5, only *one* tomb in the subsidiary gallery lacks a chest, number 9 in the east branch. However, De Morgan's plan does not associate a canopic chest with that tomb. One also has to ask why De Morgan labeled the text figure of chest 4050 on page 73 with ß, a letter that also marks the east chamber of crypt 4 on figure 128. Could it mean that chest 4050 was found there? Since tomb 4 has a limestone sarcophagus, chest 4050, which is also made of limestone, would be a possibility.[287]

Canopic Jars

(For details see p. 72)
Egyptian Museum, Cairo CG 4005–6
Bibliography: Reisner, *Canopics*, pp. 3–4

Parts of two inscribed alabaster canopic jars were probably found in the canopic chest of Princess Menet (tomb 8) in front of her sarcophagus.

Canopic Jars

Egyptian Museum, Cairo CG 4011–14
Bibliography: Reisner, *Canopics*, pp. 7–9, pl. 2

Four uninscribed alabaster canopic jars are labeled from "Dahchour," but it is not certain that they belong to the same set. Number 4011 has the pencil notation "P. 12." For details see below.

Canopic Jars

(For details see p. 83)
Egyptian Museum, Cairo CG 4015–18
Bibliography: Reisner, *Canopics*, pp. 9–11, pl. 3

Four uninscribed alabaster canopic jars are labeled from "Dahchour Py. Nord." Since there are only two groups with four jars (CG 4011–14 and 4015–18), one might conclude that one of them originates from pyramid 8 (Weret I). The notation "P. 12" on jar 4011 seems to preclude the possibility that it comes from pyramid 8, leaving jars 4015–18 as the only ones that could originate from this structure.

Canopic Jars

(For details see p. 67)
Egyptian Museum, Cairo CG 4023–24
Bibliography: Reisner, *Canopics*, pp. 14–15, pl. 5 upper; De Morgan, *Dahchour* I, p. 73

Two alabaster canopic jars were found "near sarcophagus, 3," and originate from tomb 3 (Itakayet).

Canopic Containers

Egyptian Museum, Cairo CG 4025–26
Bibliography: Reisner, *Canopics*, pp. 15–16, pl. 5 lower; De Morgan, *Dahchour* I, pp. 56–57, 73, fig. a; Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt: Equipping the Dead for Eternity* (London, 1998), p. 280, fig. 407

Two alabaster canopic containers were found "near sarcophagus, 3," and originate from tomb 3 (Itakayet). For the slight possibility that canopic jars 4023–26 were found in tomb 4, rather than in the tomb of Itakayet, see page 66.

Canopic Jar

Egyptian Museum, Cairo CG 4027
Bibliography: Reisner, *Canopics*, p. 17

An alabaster lid of a canopic jar with a human head from "Dahchour."

Canopic Jars

Egyptian Museum, Cairo CG 4036–38
Bibliography: Reisner, *Canopics*, pp. 21–22

Three limestone canopic jars from "Dahchour."

Canopic Jars

Egyptian Museum, Cairo CG 4040–42
Bibliography: Reisner, *Canopics*, pp. 23–24

Three limestone canopic jars from "Dahchour."

[285] Schwab, "Sarkophage," cat. nos. 6 (Amenemhat III at Dahshur), 71 (anonymous queen of Amenemhat III at Dahshur), 72 (Queen Aat of Amenemhat III at Dahshur), 133 (Imeni, reused in Tanis, probably time of Amenemhat III or later), 135 (Amenemhat-seneb, time of Amenemhat III or later).

[286] De Morgan, *Dahchour* I, p. 73.

[287] Schwab, "Sarkophage," p. 256, assumed that chest CG 4050 belonged to tomb 8 (Menet), not knowing that this tomb still has a canopic chest in position.

PART TWO

THE ENLARGED PYRAMID COMPLEX

At an unknown date, but probably in the later part of the reign of Senwosret III, the appearance and function of his pyramid complex was considerably changed by additions in the north and the south. The enlarged complex was enclosed by a brick wall that was embellished with sequences of projections and recesses that corresponded to the original brick enclosure. The remains of projections 8 through 10 (numbered from west to east) at the west end of the south wall are still visible; others are preserved beneath the sand. The major addition was built to the south of the original complex, whereas the north extension does not seem to have had a significant function.

The Later Outer Enclosure Wall

(pls. 120–27, 133, 152)

GENERAL FEATURES

(fig. 36)

The distance from the outside edge of the foundation of the original south outer enclosure wall to the outside edge of the new south wall was 78.80 m (150 cubits = 78.75 m). The extension to the north measured only 20.10 m (38 cubits = 19.95 m), making the total length of the enclosure 298.32 m (569 cubits = 298.725 m), while the width of 191.625 m (365 cubits) remained the same. As described above (pp. 19–20), the original outer enclosure wall displayed a regular sequence of projections and recesses, but design problems were created by the north and south additions. Since the new wall had to harmonize with the old, its form and dimensions should have been nearly identical.

The new walls were built adjacent to the corner bastions of the old ones, and each new section of wall began with a recess. This requirement, along with the planned length of the new walls, probably resulted in the number and dimensions of the new projections and recesses differing slightly from those of the original ones. Since the corner bastions of the original walls were wider than the other projections (6 instead of 4 cubits), a noticeable irregularity would have occurred at the juncture. Thus, one might assume that the faces of the old corner bastions that directly adjoined the new walls were reduced to 4 cubits in order to create seamless junctures. Such an alteration would have been easy, because only the sloping outer faces of the corner projections would need to be dressed back. Unfortunately, this theory cannot be proved, since no aboveground parts of the junctures between the walls are preserved.

The juncture of the south extension of the east wall and the causeway produced additional problems. The builders intended to have the outer causeway walls meet the front of the new east enclosure in such a way that the causeway walls would connect to projections rather than recesses. This requirement could not be met without changing the width of the projections and recesses so markedly that the harmonious appearance of the paneled enclosure would have been noticeably affected.

The new wall between the north side of the causeway and the original southeast corner of the enclosure probably consisted of six projections and seven recesses, an assumption that is based on the 1998 excavation of the ninth projection counting from the new southeast corner. The wall was 3.76 m thick and stood on a foundation platform 4.35 m wide. The recess was 1.58–1.62 m deep and 2.90–3.15 m wide, ideally 3 x 6 cubits. Projection 9 was 2.05–2.10 m wide, or about 4 cubits. The platform slopes down significantly to the south, in the direction of the causeway (p. 96). The dimensions of the recesses and projections vary somewhat because of the imprecise work of the bricklayers and plasterers, and because of spatial considerations.[288]

The enlargement of the wall to the north of the original outer enclosure was more easily accomplished, because no restrictions on either the size or number of projections had to be considered. The new sections of the east and west walls adjoined the northeast and northwest corner bastions of the original enclosure. The new sections certainly started with a recess and consisted of the sequence of recess—projection—recess—projection—recess—projection—recess—corner bastion. The new corner bastions would have had to be slightly wider than the rest of the wall projections, probably 2.90 m thick (5½ cubits = 2.8875 m) instead of 2.10 m. Only the foundation of the enclosure wall is preserved, while all aboveground brickwork has disappeared. Thus, a reconstruction of the system of projections and recesses must remain hypothetical.

Important information concerning the original height of the later outer enclosure wall was gleaned from its south wall. Behind projection 13 (beginning from the southeast, in square N/13), the wall was preserved to a height of 2.10 m, including about five courses (66 cm) of the originally underground foundation. The upper portion of the wall fell to the north in one piece, probably during an earthquake (pl. 125, section C–D).[289] About thirty courses of bricks were found sprawled along the ground, suggesting an original height of 4.20 m. If one adds to it the still standing 2.10 m lower portion, the total height of brickwork increases to 6.30 m (12 cubits), including the foundation. A total aboveground height of 5.25 m (10 cubits) seems to be indicated. The new outer enclosure wall was built using the same methods as the original one (pp. 19–22), on a solid foundation of several courses of bricks. The depth of the foundation seems to have depended on undulations in the desert surface. In the south extension, the *gebel* was apparently never reached, but instead the wall was laid on top of the solidified sand, or the sand and builders' debris that was used to level the sloping desert surface.

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[288] Some adjustments had to be made to the dimensions to fit the projections and recesses into the available space.

[289] In 1995, we found what looked like further evidence in the north cemetery for perhaps the same seismic event. The upper part of the casing of the mastaba of the vizier Nebit I (north mastaba 18) had also fallen as a unit to the north. We assume that both collapses were caused by the same strong earthquake, which must have sent shock waves from north to south. The date of the disaster can only be estimated. Before the brick enclosure wall fell, sand had accumulated behind the wall to the considerable height of 1.70 m, but the late New Kingdom destruction of the south temple had not yet occurred. The mastaba blocks had a patina from exposure to the elements, but were otherwise in fine condition. The blocks fell on the lower courses of the mastaba's brick enclosure wall, which already had been dismantled by brick robbers. One might therefore assume that the earthquake destroyed the monuments fifty to one hundred years after their construction, that is, about 1800 to 1700 B.C.E. This may have been the same event that brought down the columns in the court of Sahure's pyramid temple (Borchardt, *Sahu-re*, p. 43, figs. 10, 42–43).

THE SOUTHEAST CORNER

(pls. 122c–d, 123, lower, 126)

The southeast corner of the new outer enclosure wall was located close to the north side of a Fourth Dynasty mastaba, which stood at the north end of a monumental Old Kingdom cemetery.[290] We excavated a huge, well-dressed limestone corner block of that mastaba quite close to the wall's southeast corner (in square U/11). Although it was no longer in position, the block seems to indicate that the building is nearby.[291]

For unknown reasons, the southeast corner of the later enclosure wall was either strengthened after its completion or repaired at a later occasion with additional layers of brickwork on the south, east, and north sides,[292] so that a much thicker and possibly higher corner bastion was created. Since the first recess in the east wall was covered by the added bricks, there were two side-by-side projections on that side. Not enough is preserved of the new corner bastion to indicate the number of vertical grooves on its east and south faces (pl. 126).

THE NEW MAIN GATE

(pls. 126, 133, 152)

The main access to the south court and its temple was from the causeway in the southeast. All that remains of the gate through the new east enclosure is a 19 m wide gap in the wall, and parts of the adjoining brick causeway. The causeway met the enclosure at an oblique angle, and we cannot ascertain precisely how the connection of the walls was accomplished. A possible reconstruction is suggested on plates 126 and 152, though this solution is not architecturally satisfying. The brickwork of the causeway and the enclosure walls was bonded, indicating that both structures were built simultaneously.

The center lane of the causeway (pp. 93, 96) entered the court and continued to the facade of the south temple, while the two outer lanes provided access to the southeast court. The north lane led into an area that was blocked in the south by the causeway's center lane, in the west by the south temple and the passage wall, and in the north by the original outer enclosure wall. This isolated area of the court does not seem to have contained any important monuments. The causeway's south lane led into the southeast corner of the enclosure. Most of the area is still covered by De Morgan's dumps, but a 15 m long and 2 m wide trench cut diagonally from southeast to northwest near the inner corner (square S/13) in 1992 exposed clean desert surface, indicating that there were no buildings. A narrow path between the so-called palace (p. 105) and the south outer enclosure wall was covered with a *deka* and accessed the area south of the south temple.

The juncture of the causeway and the later outer enclosure wall also created another, unexpected problem. For unknown reasons, the incline of the causeway was not steep enough to reach the level of 45.18 m above NN at the enclosure wall itself, but only at the facade of the south temple, which stood 22 m further to the west. Since the causeway sloped 13–14 cm per meter, its level at the point where it met the enclosure wall was 2.86 m deeper than the wall (22 x 13 cm = 2.86 m). Consequently, the enclosure wall had to accommodate this depression. Since the top of the wall had to be kept horizontal, its foot sloped down 2.86 m on the north and south sides in order to meet the causeway. The incline on the south side started at the southeast corner, where it is still clearly visible today. The incline on the north side is also noticeable at projection 9 north of the causeway (pl. 124, lower). The projections flanking the causeway would therefore have reached a height of over 9 m.

One would expect that the greater height of the wall near the causeway would have necessitated thicker projections, but the excavated areas suggest that this was not the case, and that the bases of all the projections were aligned. When combined with the lower base level of the wall near the causeway, this arrangement would have resulted in a noticeable distortion at the top of the projections: the upper front edges of the projections near the causeway would no longer have been aligned with the others, but would have curved inward. Was this distortion accepted, or was it avoided by gradually lowering the tops of the projections in the direction of the causeway? One wonders why the builders did not avoid such problems by simply increasing the slope of the upper end of the causeway, so that it reached the appropriate level at the juncture with the brick enclosure.[293] Only large-scale excavation of the juncture of the causeway and the later enclosure wall might answer these questions.[294]

THE DRAIN IN THE SOUTH WALL

(pls. 122a–b, 125)

Bibliography: Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1992–1993," *Orientalia* 63 (1994): pp. 386–87, fig. 25

In 1992, we excavated a section of the later south outer enclosure wall about 68 m west of the southeast corner (squares N/12–13). After finding a 3.60 m wide gap in the brick wall, we first thought that we had found another gate, similar to the one further to the west. Soon it became clear that we had excavated the remains of a particularly large water drain that was cut through the foundation of the wall.

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[290] Two long rows of about eighteen Old Kingdom mastabas are aligned along the desert edge immediately southeast of the later enclosure wall of Senwosret III. These huge monuments seem to have been plundered. Except for De Morgan's cursory examination in 1894, they have not been excavated or documented, see De Morgan, *Dahchour* I, pp. 8–14.

[291] The block was 77.5 x 108.5 cm at the base, 55 x 89.5 cm at the top, and 70 cm high, with an inclination of 73° on two sides.

[292] The additional bricks cover the whitewashed mud plaster of the original corner, indicating that it was built in two distinct phases.

[293] Is it possible that the causeway was constructed before the later outer enclosure wall, despite the bonding of the bricks?

[294] The area is blocked by huge heaps of De Morgan's debris, which accumulated when he cleared a so-called Ptolemaic shaft immediately west of the gate (De Morgan, *Dahchour* I, p. 78, fig. 200).

Supporting the drain is a row of huge limestone foundation blocks, which sit directly on the *gebel* in the same foundation trench as the brick wall itself. Above is the actual drain channel, composed of a series of three long, hollowed out, slightly sloping limestone blocks, which channeled the water a safe distance south of the foot of the wall. The drain channel probably ends at a drain pit, which we did not reach because of the accumulated sand. The drain channel blocks were certainly covered by flat stone slabs, which have disappeared, and above by the regular brickwork of the enclosure wall. A few courses of bricks, preserved west of the drain, seem to form the spring of the vault that would have covered the upper slabs of the channel. The brickwork of the wall was completely destroyed by robbers, who pulled out one of the limestone foundation blocks, creating the 3.60 m wide gap mentioned above.

The importance of the drain system is explained by its location opposite the center of the south temple. One can assume that the temple roof drained mainly into the narrow court to the south, and that the drain system subsequently carried the water into the sloping wadi outside the wall. The interior of the court behind the drain has not yet been sufficiently excavated to allow a complete understanding of how the system functioned. In this area of the court interior, we found only a few paving slabs, which seem to have collected the water from the temple roof and channeled it into a groove that leads into the first section of the drain.

On top of the ruins of the drain channel, three limestone drums 1.06–1.10 m long and 57–60 cm in diameter were found lying in the debris. Their irregular, roughly dressed surfaces and the traces of original flat faces, one of which has a cramp socket, indicate that the drums come from a dismantled structure and that the blocks were recut into columns about 2 cubits long and 1 cubit in diameter. For unknown reasons, they were abandoned during transport.

In the area in front of the enclosure wall, three shallow brick walls form a tiny forecourt. They were probably added when sand accumulated outside the enclosure wall and blocked the drain. The walls would have kept the sand at bay and provided access for the outlet to be cleaned. More drains can be expected under the inner and outer enclosure walls of the pyramid complex.

Similar conduits drained the pyramid courts of Amenemhat I,[295] Senwosret I,[296] Amenemhat III at Dahshur[297] and the enclosures of large private Middle Kingdom tombs in the north and south cemeteries of Lisht.[298] The elaborate drainage installations of pyramid and tomb courts parallel the care taken to drain temple roofs (pp. 52–53, 102–4), and may suggest the occurrence of heavy rainstorms during the Twelfth Dynasty.

THE SOUTHWEST CORNER AND OTHER SECTIONS OF THE OUTER ENCLOSURE WALL

(fig. 29; pls. 2A–B, 4a, 120, 123, upper, 124, 126, 127, 133; plan I)

During the 1993 excavation of the southwest corner of the later outer enclosure wall, we found under mountains of debris several brick courses of the corner bastion, which still preserved remains of whitewashed mud plaster (fig. 29). The corner had an unusually complex stone reinforcement composed of a 97 x 98 cm limestone foundation that supported a pillar 46 x 47 cm and 2.03 m high. The pillar, which had fallen to the south, had been inserted into a 5 cm deep socket in the foundation block. An 80 x 86 cm and 30 cm high cover block had originally bonded the pillar into the surrounding brickwork; it was found lying on top of the fallen pillar and was reerected in 1993.

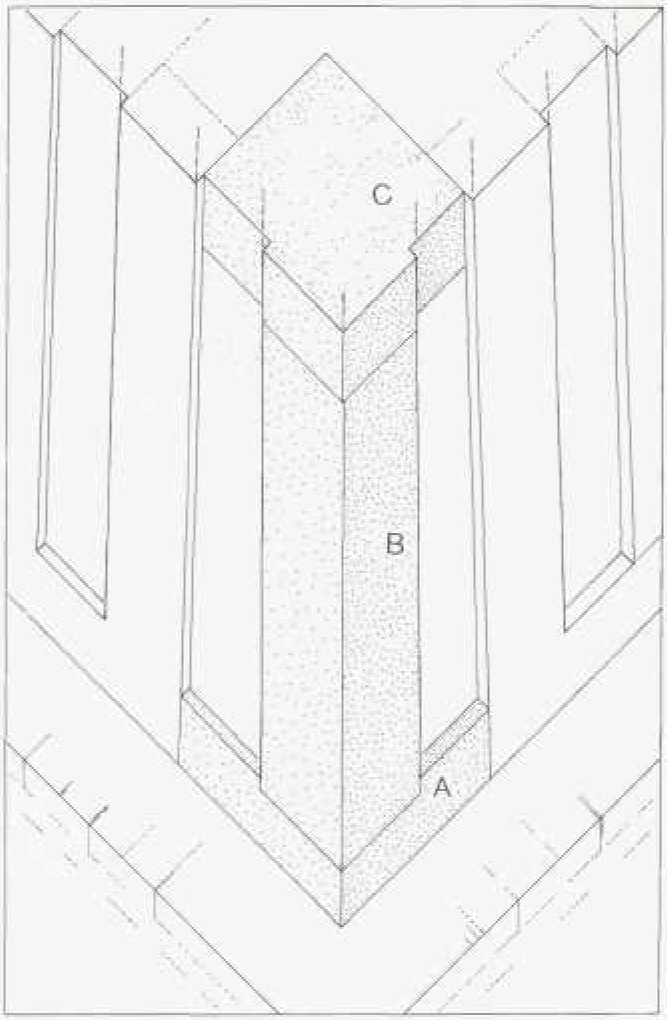

Fig. 29. Reconstruction of the southwest corner of the later brick outer enclosure wall with three preserved cornerstones (A–C). Drawing D.A.

During several seasons, the later outer enclosure wall was surveyed, studied, and drawn in the following locations.

H/13) A section of the later enclosure wall was opened in 1990 in the area of the south gate (pls. 120c–d, 127). The recesses on both sides of the gate were 1.62–1.66 m deep and 2.905 m wide; the projections were 2.05 m wide.

B/21) In 1990, the juncture of the southwest corner of the original enclosure wall and the later west wall was opened and found to be almost completely destroyed. Only a thin coat of the wall plaster on the west side still stands. There is a large hole to the east, so nothing remains of the juncture point, though the original enclosure wall is still preserved farther to the east (in square D/21). The excavation did not go deep enough to reveal the foundation, which may be better preserved. The remains suggest that the wall was 4.20 m thick.

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[295] A. C. Mace, "Excavations at Lisht," *BMMA* 17, pt. II (1922): p. 5, fig. 1.

[296] Arnold, *Senwosret I*, vol. 1, pp. 84–86.

[297] Several examples are preserved in the buildings along the north side of the causeway and in the valley temple. They will be published in Dieter Arnold, *Der Pyramidenbezirk des Königs Amenemhet III. in Dahschur*, vol. 2, in preparation.

[298] For example, Arthur C. Mace, "The Egyptian Expedition: Excavations at the North Pyramid of Lisht," *BMMA* 9 (1914): p. 212, fig. 4; idem, "Excavations at Lisht," *BMMA* 16, pt. II (1921): pp. 8–9, figs. 7–8. Details of these and other examples will be published in Dieter Arnold, *Mastaba Architecture of the Twelfth Dynasty at Lisht and Dahshur*, in preparation.

D/41) In 1990, the juncture of the northwest corner of the original enclosure wall (p. 21) and the later west wall was excavated. The corner was covered by a solid mass of fallen bricks. The excavation was not deep enough to reveal the foundation, which may be better preserved.

D/43) In 1999, the northwest corner of the later outer enclosure wall was excavated. Five well-preserved courses of bricks clearly show the corner at a level of 45.21 m above NN. The corner stone was missing and replaced by the present excavators with a modern one. The distance between the outer corners of the original and the later outer enclosure walls is 20.10 m.

W/41) A section was made in 1990 in order to locate the northeast corner of the later enclosure wall (plan I).

V/39) Excavation was undertaken at the juncture of the northeast corner of the original outer enclosure wall and the later east wall (p. 22; pl. 2B).

U/20) Excavation was undertaken at the juncture of the southeast corner of the original outer enclosure wall and the later east wall (p. 22; pls. 2A, 4a).

T-U/17) In 1998 and 1999, a section of the east side of the later enclosure wall north of the causeway was opened in order to search for a temple dump; projection 9 and parts of the adjoining recesses were excavated (pl. 124). The foundation platform was 4.43 m wide and consisted of six courses, the lowest of which had bricks that stood on their long edges (brick-on-edge). One-and-a-half top courses remained aboveground and were plastered. The recesses were 1.58 m and 1.62 m deep, while projection 9 was 2.10 m wide; the wall behind the recess was 2.15 m thick. About 1 m of the wall was preserved above the platform. Masses of complete and broken small late Twelfth Dynasty offering vessels were found in the windblown sand covering the destroyed wall.[299]

T-U/16) In 1990, another section was made at the juncture of the causeway's north wall and the later outer enclosure wall (pls. 126, 133). North of the north lane of the causeway, a mud surface remains with a few bricks laid at an oblique angle to the enclosure wall. The connection between this "wall" and the adjoining surface level and socle of the enclosure wall is unfortunately interrupted by an excavation trench but the bricks certainly mark the uppermost level during the Middle Kingdom. The north side of the causeway wall was plastered and whitewashed. Clear traces of red paint could be seen on the front of the first recess of the outer enclosure wall north of the causeway. Do they indicate measuring marks, or a red design painted further up on the wall, perhaps in the form of regularly arranged red squares? Several small offering vessels fell into the trench from the southwest and northwest.

T/14) Another section was made at the juncture of the causeway south wall and the later enclosure wall (pls. 126, 133). A mass of fallen bricks covered the area. The corner formed by the juncture of the walls was composed of 29 cm high limestone blocks. The uppermost block was at 43.20 m above NN (89 cm above the *gebel*), and probably indicated the level of the entrance into the court. The interior of the wall was hollowed out by brick robbers or De Morgan's workmen.

The Causeway

(figs. 30–32; pls. 126, 128–33, 134a)

The causeways that connected the pyramid enclosures of the Old and Middle Kingdoms to their valley temples progressively expanded from simple, narrow brick corridors to solid, covered stone passages. During the Middle Kingdom, a stone center lane is flanked by unroofed side lanes enclosed by brick walls.

DIMENSIONS OF MIDDLE KINGDOM CAUSEWAYS (in meters)

Pyramid	*W. Side Walls*	*W. Side Lanes*	*W. Center Lane*	*Overall W.*
Senwosret I[300]	1.30	6.30	7.37	22.60
Amenemhat II[301]	ca. 2	no lanes preserved		20.00
Senwosret II	not found or destroyed			
Senwosret III	3.75	3.00	ca. 9.15	22.65
Amenemhat III (Dahshur)[302]	2.10	4.92	8.55	22.58
Amenemhat III (Hawara)[303]	3.53	no lanes preserved		27.00
Mazghuneh-North[304]	1.50	no lanes preserved		46.00

The pyramid complex of Senwosret III was accessed by a 250 m long causeway of this later, triple-lane type. The existence of Senwosret III's causeway was indicated by a wide, sloping plane that ascended from southeast to northwest, that is, from the valley to the pyramid plateau. The location of the causeway is clearly visible in aerial photos. De Morgan recognized it, exposed remains at its upper end, and included its location on his maps; in 1924–25, Jéquier discovered important remains at its lower end (fig. 31). However, no proper survey or comprehensive study resulted from these efforts, and many questions remained open. To solve some of these problems, we dug several sections along the causeway (fig. 30):

Sections I–II in the 1990 season
Section III (underpass) in the 1992 season
Section IV (near valley temple) in the 1992 season
Section V in the 1992 season
Squares R/16–17 in the 1993 season

THE UNDERPASS AND SURROUNDING AREA

(figs. 30B, 31; pls. 128–31, 132a)

Bibliography: Dieter Arnold, *Lexikon der ägyptischen Baukunst* (Zurich, 1994), pl. 10

In the winter of 1924–25, Jéquier worked for three and a half months in an area approximately 24 x 33 m at the lower end of the causeway, prompted by a slight rise in the desert surface

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[299] The vessels were excavated and will be published by Susan Allen and Bettina Bader.

[300] Arnold, *Senwosret I*, vol. 1, pp. 18–21, pls. 76–77.

[301] De Morgan, *Dahchour* II, p. 38.

[302] To be published in Dieter Arnold, *Der Pyramidenbezirk des Königs Amenemhet III. in Dahschur*, vol. 2, in preparation. For now, see De Morgan, *Dahchour* II, p. 99, fig. 143.

[303] Petrie, *Labyrinth*, p. 33, pl. 32.

[304] Petrie, *Labyrinth*, p. 55, pl. 49.

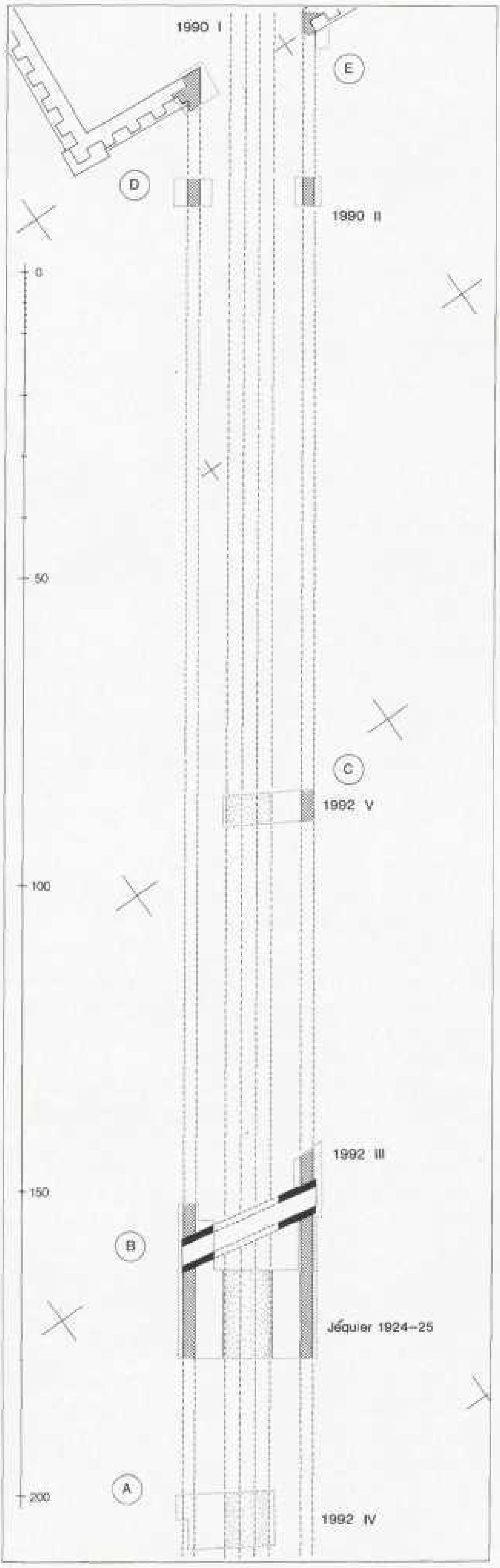

Fig. 30. The locations of the 1990 and 1992 Metropolitan Museum sections along the causeway and of the 1924–25 Jéquier excavation at the lower end of the causeway. Drawing D.A.

that suggested the location of the valley temple.[305] Instead, he uncovered a crucial section of the causeway, where not only remains of the outer brick walls were preserved, but also significant amounts of the center stone lane, along with an underpass for pedestrian traffic unrelated to the pyramid complex. Whereas all upper (west) parts of the center lane were completely removed by stone robbers, the lower end was protected and hidden under sand. The precise location of the work was not recorded, and only a small plan and section (scale 1:330) were published, together with a photo taken before farming had altered the landscape to the east.

Jéquier found a few relief fragments that he assigned to the causeway walls, among them the famous block with running soldiers now in the Egyptian Museum, Cairo (JdE 51978), and at least two others.[306] Jéquier also discovered a few fragments of a cavetto cornice that he assigned to the causeway. The present excavators have found several additional relief fragments. Because no traces of the causeway walls remain, it cannot be determined whether or not they were decorated; these relief fragments simply may have been dragged down the slope during the destruction and quarrying of the complex's temples.

In order to map these important features and record the causeway remains, we opened a trench in the area where we believed the underpass might lie (section III, figs. 30B, 31). Fortunately, we quickly reached the entrance to the underpass in the north brick wall. So much sand had accumulated in the area that we had to engage a bulldozer to remove it, but we were still able to clear only a relatively limited section around the entrance. The excavation enabled us to include Jéquier's discoveries on our own map and to document the gate in a more precise manner. Based on Jéquier's publications and our own work, we have reached the following conclusions.

The causeway consisted of a center stone lane flanked by brick walls, an arrangement similar to the causeways of other Middle Kingdom complexes (see above). At the lower end of the slope along the desert edge, the causeway crossed a shallow depression that is no longer visible. In order to avoid altering the angle of the slope, the builders constructed a high embankment that carried the center lane over the depression (see reconstruction, pl. 130). Jéquier found that the embankment was about 9.15 m wide and consisted of a foundation course of limestone blocks that supported a brick core covered by a battered limestone casing. Each course of the battered side walls was slightly set back, and the casing blocks were connected with wood cramps. About twenty brick courses and about six casing courses were preserved to a height of approximately 3.5 m, but originally the embankment was higher. Consequently, no traces of the actual center lane were preserved, and we have no indication of its width or height.

Huge brick walls stood about 3 m to the north and south of the center lane, flanking the embankment; they measured about 3.75 m wide at the base. We could not open the foundation of the wall because of the high groundwater level, but our workmen could at least feel a brick step protruding from the north side of the foot of the north wall. The wall was battered, with the outer faces steeper than the inner, but the badly worn surfaces did not permit us to measure the angles precisely. We were able to calculate that the original height of the

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[305] Gustave Jéquier, "Rapport préliminaire sur les fouilles exécutées en 1924–1925 dans la partie méridionale de la nécropole memphite," *ASAE* 25 (1925): pp. 56–61; idem, *Douze ans de fouilles dans la nécropole memphite, 1924–1936* (Neuchâtel, 1940), pp. 133–38.

[306] JdE 51958 [lost]; 51959.

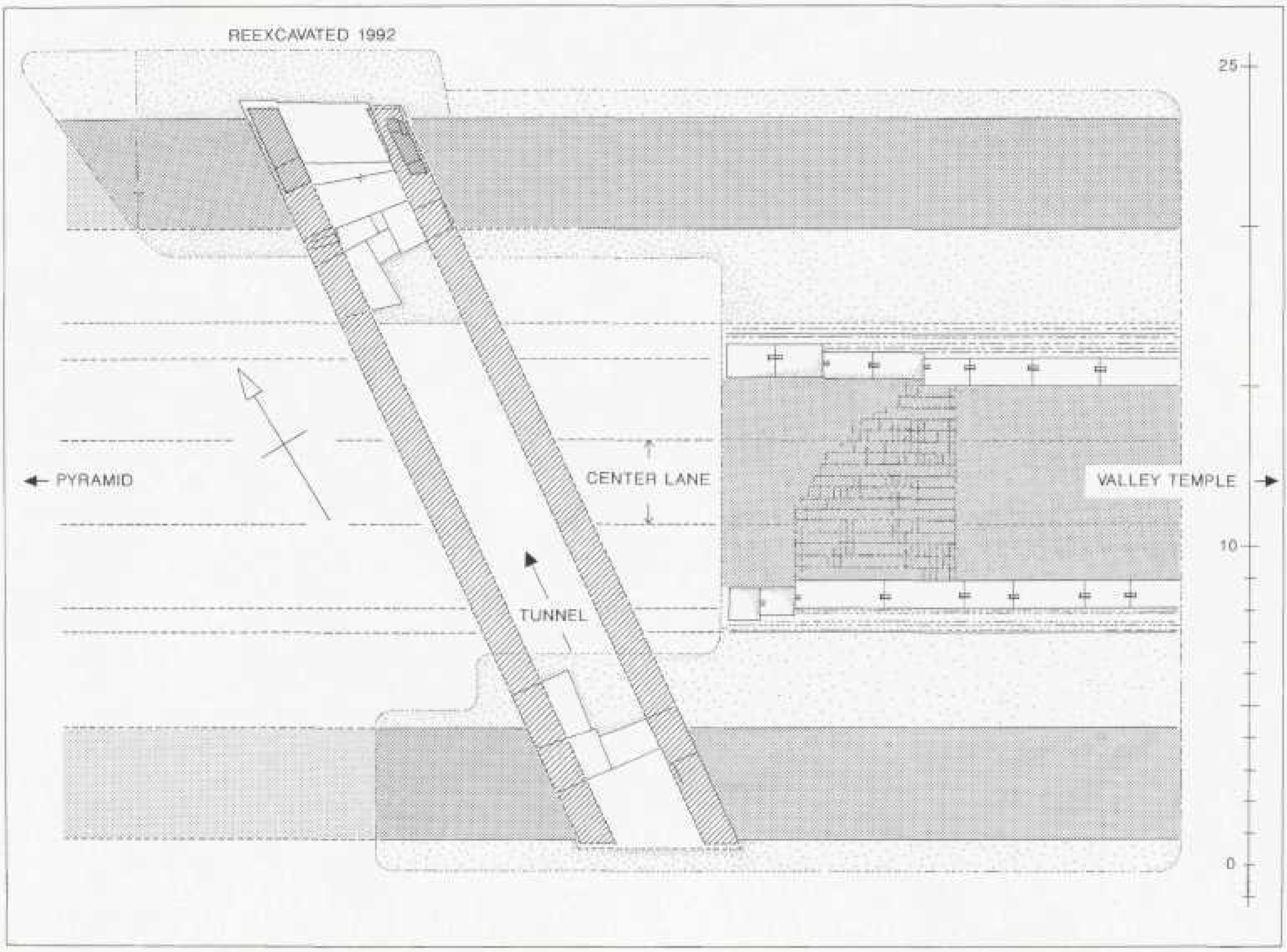

Fig. 31. The area at the lower end of the causeway excavated in 1924–25 by Jéquier (shaded area). The area reexcavated by the Metropolitan Museum in 1992 is in the upper left corner. Scale 1:200. Drawing D.A.

north wall was about 7 m above the brick foundation. About 3.80 m of the wall and its foundation remain. The tops of the side walls would certainly have been curved.

The considerable height of the outer walls resulted from the causeway crossing the above-mentioned shallow depression along the desert edge. To the west, the desert slope rose so steeply that the heights of the brick walls had to be reduced accordingly, a fact confirmed by the results of our excavations further to the west in causeway sections I and II (fig. 30D–E; pls. 132c–d, 133). In order to produce an even surface, the spaces between the embankment of the center lane and the two flanking brick walls were certainly filled up to the pavement level of the center lane.

The closed system of harbor, valley temple, causeway, and pyramid enclosure would have completely interrupted any north-south traffic along the west bank of the Nile. The Egyptian builders were aware of this problem from other sites, and took corrective measures. Since technical and religious considerations prohibited an overpass, they built a stone underpass through the two outer brick walls and the embankment of the center lane; the foundation and some of the wall blocks of this passage are still preserved. We were principally able to study the north entrance to the underpass and the adjoining brick wall, previously excavated in 1924–25 and little changed since then. The underpass followed the general north-south flow of pedestrian traffic and therefore cut obliquely through the causeway, which ran southeast-northwest. The floor and walls of the underpass were built on top of a 30 cm thick stone foundation course. The fine limestone pavement was about 50 cm thick. The pavement slabs supported the side walls, constructed with huge orthostats. The tops of the side walls are missing, but one can calculate that the passage was about 2.30 m high, sufficient for pedestrians and loaded donkeys to walk comfortably through the 22 m long tunnel. The flat roof must have consisted of heavy stone slabs.[307]

One block from each frame of the north gate is preserved; the west one is still in position, but major parts of the east frame have been removed, and the remaining part has been shifted. The front of the frame is battered and well dressed. The underpass's walls were also carefully dressed, and the joints between the blocks neatly cut and secured with cramps.

Jéquier had observed the remains of a discharging brick arch that prevented the weight of the brick wall from reaching the roof of the stone underpass.[308] The impost of the arch is still visible on both sides, suggesting that it was originally built with seven rings of bricks, which were altogether about 1.65 m thick. The apex of the arch would have been about

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[307] The better preserved passage at the pyramid of Amenemhat III at Dahshur had a flat ceiling and was 16.5 m long, see De Morgan, *Dahchour* II, p. 99, fig. 144.

[308] The weight of the brick wall actually did not require a discharging arch, but the builders constructed one anyway. The much heavier central stone lane crossed the roof without such a relieving device (compare here pl. 130).

2.80 m above the stone ceiling of the underpass and the span about 4.60 m wide.

Unfortunately, exposure to humidity has melded the bricks together in such a way that we were able to identify only single rings, but could not recognize the shapes of individual bricks with certainty. It is therefore unclear if all rings were constructed from headers (placed on edge), or whether the rings alternated between headers and stretchers (as reconstructed in our drawings).[309]

Given the destruction of the arch, other questions also remain open. For example, it would be interesting to know precisely how the builders tackled the problem of an arch placed inside a wall with battered faces and east-west inclined bedding joints (due to the incline of the causeway). The fact that the bricklayers chose to construct a relieving arch of questionable effectiveness, despite technical problems, indicates that they were confident of their skills. With its size and problematic structure, the arch represents an interesting example of early brick architecture.[310] Similar discharging brick arches above stone doorways are known from other sites.[311] In the 2000 season, we found a much older prototype, a discharging stone arch above the door lintel of a Fourth Dynasty burial chamber, located slightly northeast of the pyramid complex of Senwosret III (unpublished).

The passage is also not unique. Examples of underpasses are found under the causeways of Khafre and Khentkaus at Giza[312] and Amenemhat III at Dahshur,[313] but they must have existed at every pyramid complex where a causeway, valley temple, and harbor would have obstructed land traffic.

CAUSEWAY SECTIONS WEST OF THE UNDERPASS

(fig. 30; pls. 126, 132b–d, 133–34a)

Section V 1992

(fig. 30C; pl. 132b)

In order to determine the location of the causeway and to see if remains of the center stone passage still existed farther to the west, we dug a 5 x 16 m trench across the causeway, about 60 m west of the underpass. The surface showed traces of recent disturbances and stonecutting activities. Numerous limestone slabs roughly 30 x 50 cm and only 2–3 cm thick were found in the sand, apparently cut with modern saws. The stone robbers may have placed a course of brick and an irregular stone setting 1.20 m below the surface to block the flow of sand. The location of the north foundation trench for the lining of the center lane may be indicated by the edge of a mud-covered surface (see below). Some larger fragments of limestone blocks further to the south may originate from the south casing. Their irregular position also points to later activity and not to their original arrangement.

At the north edge of the trench, 1 m below the present surface, the 50 cm high remains of the north brick wall of the causeway are preserved. Because of the masses of loose sand, we could not excavate the north side of the brick wall down to its foot. Its interior had been hollowed out by brick robbers. A *muna* paving inside the wall leads southward and ends with a straight line that might show the location of the edge of the center lane's foundation trench. The results of section V 1992 therefore confirmed the existence of the north brick wall, but failed to produce convincing evidence for the center stone lane.

Section II 1990

(fig. 30D; pls. 132c–d, 133)

Two trenches that were opened near the upper end of the causeway, 15 and 20 m east of the gate in the later outer enclosure wall, revealed the well-preserved remains of the two flanking brick walls of the causeway. The center stone lane seems to be reduced to its foundation, but we could not reach it, because the flow of sand prevented us from digging deeper than 2 m. The brick walls are preserved to a height of 1.5–2 m and were built on a three to five course brick foundation, which extends about 8–18 cm beyond both sides of the walls. The wall surfaces were covered with whitewashed *muna*. The batter of the walls is irregular, and seems to be steeper on the exterior. We were able to make the following measurements:

Exterior South Wall:	1 palm + 1 finger to 1 cubit
Interior South Wall:	1–2 fingers to 1 cubit
Interior North Wall:	1 palm to 1 cubit
Exterior North Wall:	1 palm to 1 cubit

The walls were 16.28 m apart (31 cubits), and 2.10 m (4 cubits) thick at their bases. The bricks were laid in alternating courses of headers and stretchers. Oblique courses inside the masonry were used to decrease the thickness of the rising walls. From the batter of the walls, one may calculate that their original height was between 8 cubits (4.20 m) and 8½ cubits (4.46 m). The slope of the walls (downhill) is 13–14 cm to 1 m.

South of the south wall, a well-preserved brick pavement extended beyond the edge of our section. The pavement, which is about 18 cm higher than the interior causeway level, may continue to the southeast corner of the pyramid complex, about 15 m away, where it reappears at the foot of the corner bastion. The purpose of the pavement is unknown.

The sand between the walls contained several Saite potsherds, which probably come from a burial, numerous Middle Kingdom relief fragments, and a tombstone with a Greek inscription.

Section I 1990

(fig. 30E; pls. 126, 133)

The connection of a causeway to a paneled enclosure wall seems to be unique and, from the point of view of architectural forms, irreconcilable. However, the builders of the Senwosret III complex dared to confront the problem. In order to find out how they managed to connect the two disparate structures, we excavated the area in which the west ends of the two outer causeway walls joined the paneled outer enclosure wall.

Unfortunately, the building material at this juncture seems to have been largely robbed and covered by a huge hill of De Morgan's debris, which accumulated around the mouth of the so-called Ptolemaic shaft. Many bricks that had fallen from south to north were also observed; they apparently belonged to the fifth projection of the paneled outer enclosure wall. Thus, the reconstruction of the gate area remains problematic. Was there a huge stone gate or structure in the center into which the causeway's central stone lane led, and was this structure completely removed by robbers? Or was there just a gap between the fifth and sixth projections of the outer enclosure wall, as is indicated in our reconstruction? If the latter, how was the transition between the curved tops of the shorter causeway walls and the higher side walls of projections 5 and 6 accomplished?

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[309] Both methods were used in Egyptian brick vaults, compare El-Naggar, *Les voûtes*, vol. 2, pl. 259 with pl. 273.

[310] Since the remains of the arch could not be protected from the elements, we refilled the trench with sand.

[311] For example, at the secondary gate of the east enclosure wall of Karnak (time of Nectanebo I), where the arch consists of seven to eight rings. The vault above the stone roof was filled with brick masonry and/or broken bricks.

[312] Vito Maragioglio and Celeste Rinaldi, *L'architettura delle piramidi menfite*, vol. 5 (Rapallo, 1966), p. 74, pl. 5, fig. 5 (Khafre); vol. 6 (Rapallo, 1967), p. 184, pl. 19 (Khentkaus).

[313] De Morgan, *Dahchour* II, pp. 99f., fig. 144.

The causeway's south brick wall joined the outer face of the enclosure wall's fifth projection at a steep angle. The north side of the fifth projection followed the oblique angle of the causeway wall. At the northwest corner of the projection, a limestone block was found. Its upper surface is 43.20 m above NN, marking the corner, and originally certainly supporting a stone pillar or a similar corner reinforcement (for a similar one, see p. 91). The foundation of the fifth projection is seven courses or 95 cm deep.

The causeway's north brick wall joined the front of the enclosure wall's sixth projection, creating a construction similar to that on the south side of the causeway. The north side of the causeway wall is still partially plastered and whitewashed, and sits on a foundation that protrudes on both sides. The foundation and wall of the causeway adjoin the foundation platform of the outer enclosure wall. The east-west slope of the causeway's foundation is 13 cm to 1 m (about 8°), similar to that measured in causeway section II. A great number of late Twelfth Dynasty model vessels were found on top of the brick foundation platform of the outer enclosure wall at the level 44.07 m above NN. They were probably deposited or thrown there before large amounts of debris fell over the destroyed walls.

Squares R/16–17 1993

(fig. 32; pl. 134a)

Whereas the causeway's two brick outer walls apparently ended at the outer enclosure wall, the center lane of the causeway passed through its main gate. First, the center lane crossed the southeast court and entered the center of the south temple, probably ending in a forecourt. Another passage in the north left the forecourt and passed through the gate in the south wall of the original outer enclosure wall (square R/20).

De Morgan found a "Ptolemaic" tomb shaft that he labeled "H" in the center lane. Nothing was published concerning either the depth of the shaft or the type of chamber at the bottom. The tomb, completely stripped by robbers, contained the inscription of a *Ḥr-n-pꜣ-wrw-pn-Njt*, "head of the police, son of Pedusiri and Taimhotep," who was probably the owner of the tomb.[314] The lower part of a Middle Kingdom statue of a Senbebu(?) was also found in the same shaft.[315] It is not known whether the shaft was dug for the *Ḥr-n-pꜣ-wrw-pn-Njt* or was originally part of the Senwosret III project.

In 1993, we dug a trench at the presumed location of the front of the south temple (squares R/16–17), slightly north of the temple's central axis. In part, the trench was dug in order to find remains of an entrance gate in the south temple. At the same time, the trench offered the possibility of gaining information about the debris mound surrounding the "Ptolemaic" shaft. The trench revealed the completely preserved brick subfoundation of the south temple, which is four courses thick. The distinct edge of the brickwork and the vertical cut for the foundation trench in the *gebel* mark the east side of the building. Above this east edge are two courses of causeway bricks sloping down perceptibly to the southeast. These bricks were not sunk into a foundation trench, like that of the temple, but were laid directly on the *gebel* surface. The inclination and the oblique orientation of the bricks in relation to the temple facade clearly show that the bricks belong to the subfoundation of the causeway's center lane, which entered the temple from the southeast.

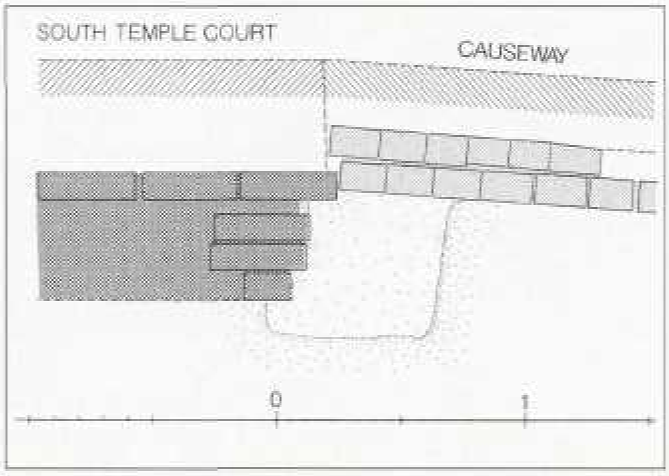

Fig. 32. West-east section showing the juncture of the brick subfoundations of the east side of the south temple and the causeway, facing north. Scale 1:30. Drawing D.A.

The brick surface of the causeway foundation was covered with a great number of limestone chips from the destruction of its stone walls. The debris also contained good-quality relief fragments, some of which included small-scale figures. Also found were a fragment of the upper end of a papyrus-bundle column and a huge slab with a slightly curved surface that must have belonged to a doorframe. A roughly set, apparently modern brick wall crossed the area from east to west. Thrown against the north side of the wall was a great number of fragments of a terrazzo-like floor that cannot be of ancient origin, but which might have belonged to an installation made by De Morgan or Jéquier.

PASSAGE BETWEEN SOUTH TEMPLE AND PYRAMID COURT

(pls. 4b, 121a; plan III)

Excavating the area of the northeast corner of the south temple (squares R–S/19–23), we found that a brick subfoundation 5.20 m wide and 45 m long ran to the north, passed through the original outer enclosure wall and ended in front of the southeast corner of the inner enclosure wall. There is no doubt that we found the foundation of a passage connecting the south temple to the inner pyramid court. The passage's brick subfoundation was separated from that of the south temple by a clean joint. In the north, the arrangement of the bricks in the gate in the outer enclosure wall is less clear. The brick foundation of the wall was apparently cut through when the passage was built, but it was not completely removed; the lowest courses were left in position and were integrated with the bricks of the passage. The gap in the wall above the roof of the passage was probably reconstructed with the original panel decoration (pp. 22–23).

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[314] De Morgan, *Dahchour* I, p. 81, fig. 200.

[315] De Morgan, *Dahchour* I, p. 74, fig. 175 *bis*.

The subfoundation consisted of one layer of bricks with a surface level between 44.76 and 44.84 m above NN, leaving room for a stone foundation only 70 cm thick. The surface had several steps, apparently made to accommodate and level foundation blocks with different heights. Originally, the subfoundation of the passage was separated from the subfoundation of the southeast corner of the inner enclosure wall by a 35 cm wide gap. When the work advanced, the gap was closed with single, disconnected bricks. It was also observed that the subfoundation of the passage cut into the southernmost brick row of the subfoundation of the stone inner enclosure wall.

Not a single foundation block remained, but the plundered trench was filled with limestone fragments and chips confirming the existence of a limestone construction. The decorated fragments included ones that were only painted, some that had begun to be carved, and some that seemed to have reached a state of completion. They may indicate that sculptors had begun to decorate the passage but could not finish their work. However, there was also no definitive evidence that any of the inscribed or decorated blocks and fragments found there originated from the passage. We found several fragments of papyrus-bundle columns that must have originated from the south temple.

Since the passage would have restricted the access to pyramids 7–9, one would expect that secondary doors were placed in its east and west walls to permit access from the original outer enclosure wall to the subsidiary pyramids. However, no evidence for side entrances could be found.

The brick subfoundation was punctured by oval holes from burials that were sunk into the debris covering the destroyed passage; the graves belonged to a post–New Kingdom cemetery that covered the area to the north, south, and east of the pyramid (pl. 39).

The Presumed Valley Temple

(fig. 30A)

The presence of a large causeway ascending the plateau from the southeast suggests that a monumental valley temple once existed. During the 1992 season, we dug a 5 x 10 m trench in the easternmost accessible sandy area west of the cultivation, and roughly above the north side of the causeway's center lane (section IV, fig. 30A). We hoped to determine whether or not the causeway had already entered the valley temple. The work had to be abandoned about 3.00 m below the desert surface because of rising groundwater, which threatened to collapse the side walls of the trench.

At the bottom of the pit, a few large limestone blocks, two standing limestone slabs, and some debris were found, which may originate from the north stone casing of the causeway's center lane. Dark-colored mud south of the blocks may be the residue of the brick core of its embankment. The results of this work led us to conclude that the remains we found belong to the lower end of the causeway, and that the valley temple is buried further to the east, in an area now covered by fruit trees. A large elevated area at the west edge of the garden (east of the tamarisk trees marking the division between desert and cultivated land) suggests the location of the temple area. On old aerial photos, these sand mounds are visible in the area of the causeway's east end. The poor condition of the fruit trees growing in this part of the garden also suggests that they are planted in stony soil.

The only finds were several small, flat, undecorated alabaster and granite fragments, which were discovered near the surface.

The South Temple

(frontispiece; figs. 33–35, 38; pls. 134–41, 142a–c, 143–49; plan III)

Bibliography: Arnold and Oppenheim, "Senwosret III," pp. 48–49, 54–56

The results of De Morgan's excavations in the southeast court suggested the presence of one or more architectural monuments of major importance that he misunderstood. A huge L-shaped wall on the south side of the court even seemed to imply the existence of a south tomb, similar to the one in the Djoser complex.[316] Only after digging several trenches during the 1990 and 1992 seasons were we able to accurately interpret the architectural remains, which chiefly consist of the foundation pit of a huge temple that filled most of the southeast court (fig. 33).

The excavation of the south temple is incomplete, and still requires much work. The following discussion should therefore be considered only a preliminary report that reflects the state of knowledge as of 1994, the last year major excavation was undertaken in the area.

THE PLAN

(pl. 135; plan III)

The south temple was about 47.25 m (90 cubits) wide north-south and 76.125 m (145 cubits) long east-west. Its facade was on the east side, and a square projection (the so-called palace, see below) adjoined the southeast corner. The large dimensions are astonishing, not only for a Middle Kingdom temple, but for one of any period of Egyptian history, even exceeding those of the Ptolemaic temples built at Kom Ombo, Edfu, and Dendera, none of which is more than 40 x 73 m.[317]

Unfortunately, no aboveground walls or paving blocks of the temple remain to suggest the arrangement of the interior spaces, but countless fragments of relief decoration and architectural elements have provided at least a general impression. More information has been gained from the structure of the temple's better-preserved brick subfoundation. The surface of the subfoundation (see below) reached four different levels, reflecting limestone foundations of different thicknesses. Measuring down from the temple's pavement level of 45.75 m above NN (as calculated from the southeast corner of the "palace," see below) to the surface of the brick subfoundation allowed us to establish that the stone foundation had the following heights:

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[316] Jean-Philippe Lauer, *La pyramide à degrés: L'architecture*, vol. 1 (Cairo, 1936), pp. 94–110.

[317] Their approximate dimensions are: Edfu 34 x 73 m, Kom Ombo 40 x 66 m, Dendera (without the Roman pronaos) 35 x 59 m.

1. 44.22–44.25 m above NN in the west part of the main temple, suggesting a stone foundation of 1.50 m.
2. 44.53–44.55 m above NN in the east part of the main temple, suggesting a stone foundation of 1.20 m.
3. 44.64 m above NN in the north part of the "palace," suggesting a stone foundation of 1.12 m.
4. 44.90 m above NN in the south part of the "palace," suggesting a stone foundation of 0.84 m.

The thickness of the stone foundation probably reflects the height or weight of the structure being supported, and we can therefore suggest that the building included the following four sections (assuming that the whole temple had one pavement level and did not rise to the west):

1. The 55 m long west section of the main temple was naturally the tallest part of the structure.
2. The 21 m long east section of the main temple was lower and may have included a columned forecourt.
3. The north section of the "palace" was either the same height as the above-mentioned forecourt or perhaps slightly lower.
4. The south section of the "palace" was certainly lower than the north part of the "palace," and was the lowest area of the entire temple.

THE FOUNDATIONS

(fig. 33; pls. 134–36; plan III)

Before building started in the area of the south temple, the desert surface sloped considerably downward from north to south, so that the foundation for the structure could not be sunk into natural *gebel*, but was laid in a fill of builders' debris and sand. The fill also served to raise the court surrounding the south temple to the same level as the rest of the pyramid complex (at 45.50 m above NN). The 1993 excavation of the northeast, northwest, and southwest corners of the temple revealed some interesting features and allowed us to establish the sequence of the construction project.

When the outlines and corners of the temple were determined, right-angle walls were built outside the northwest and southwest corners. These 1–1.20 m high constructions were about 102–110 cm long on each side and probably served as measuring points.[318] These right-angle walls were then connected to each other by 1 m high retaining walls along the temple's north, west, and south sides, which kept the surrounding fill from falling into the construction site.[319] The walls sat on a 20 cm high layer of gravel and limestone chip piled on top of the sand.

Thereafter, the brick subfoundation, which consisted of five to seven courses, was laid inside the enclosed area, with the bricks of the lowest course occasionally standing on their long edge (brick-on-edge). The bricks were arranged in long rows of headers, most of them laid regularly and carefully over a large area, though for unknown reasons some rows are markedly curved. There are also numerous sections where the direction and even the height of the courses change, possibly indicating the work of separate groups of bricklayers.

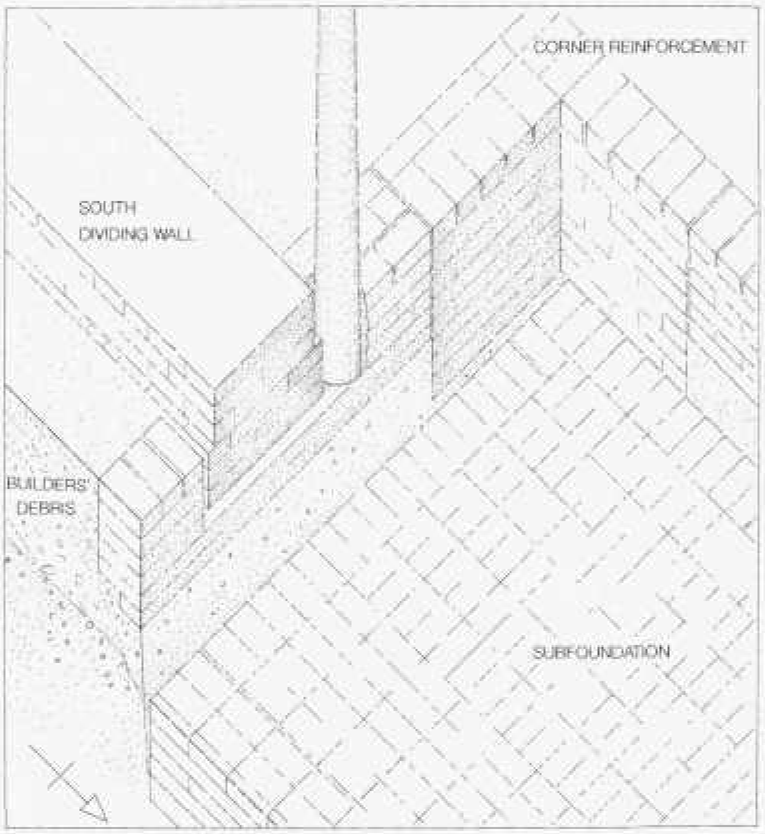

Fig. 33. Reconstruction of the southwest corner of the brick subfoundation of the south temple with the retaining walls of the ancient excavation of the foundation and a semicircular hole for a wood pole. Drawing D.A.

Subsequently, the stone foundation was laid on top of the brick subfoundation; it consisted of one or two courses of true foundation blocks covered by a third course of paving slabs. A few foundation blocks along the outer edges of the temple escaped the stone robbers and are still in situ. A few more blocks are preserved in the area where the west wall of the "palace" joins the south wall of the main temple (square P/15), and along the south wall of the main building. All preserved blocks are of fine-quality Tura limestone, but were only roughly dressed.

During the construction process, deep semicircular holes were carved into the right-angle walls of the northwest and southwest corners (fig. 33; pl. 134d). These holes were probably used for the insertion of wood poles. The huge diameter of about 30–40 cm suggests that the poles were tall and strong, and that they were probably used by surveyors to stretch measuring cords as the temple walls grew higher.[320] In order to search for a foundation deposit, we dug a pit in the southwest corner of the temple to a depth of about 2.5 m below the brick surface, but found only clean sand.

In 1993, we located the northeast corner of the south temple, and found that it lacked a retaining wall and that the fill outside this corner was lower. However, the brick subfoundation clearly indicated the corner. Immediately west of the corner begins the 5.2 m wide brick subfoundation of the passage between the south temple and the inner pyramid court (pp. 96–97).

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[318] Similar to the corner reinforcements in the foundation of the pyramid of Amenemhat III, see De Morgan, *Dahchour* I, p. 88; Arnold, *Amenemhet III*, p. 9, pl. 41A–B; idem, *Building*, pp. 111–12.

[319] De Morgan mistook the south retaining wall and the dividing wall in squares K/13–15 (see below) for the walls of a building along the south side of the court. His error initially misled the present excavators.

[320] Herbert Ricke, *Die Tempel Nektanebos' II. in Elephantine und ihre Erweiterungen*, Beiträge zur ägyptischen Bauforschung und Altertumskunde, vol. 6 (Cairo, 1960), pp. 7–8, 56–57 n. 28, pl. 4a with more examples from Tanis.

THE "PALACE"

(pls. 135–36; plan III)

The present excavators have termed the square southeast extension of the south temple the "palace" because of certain analogies to the palacelike buildings at the southeast corners of the Theban royal mortuary temples of the New Kingdom.[321] In addition to the identical placement, the "palace" area contained numerous fragments of royal statues, suggesting that the building served as a statue palace for the king. The structure was about 35 cubits (18.375 m) east-west and 33 cubits (17.325 m) north-south.

As mentioned above, the palace's brick subfoundation, which is up to five courses thick, has a distinct step across the center from east to west—the north side of the foundation is shallower and the south side is deeper—indicating a change in the thickness of the stone foundation. The transition probably indicates that either a forecourt or a small hypostyle hall stood on the north side and a smaller structure on the south side, perhaps a row of shrines. The existence of shrines is also supported by the numerous fragments of brown quartzite that were found in the area. Because many of the quartzite fragments have only one flat surface, one would assume that they were architectural elements rather than parts of sculptures. The shrines may have housed granite statues, numerous fragments of which have also been found in the area, particularly in the debris mounds south of the later enclosure wall (squares P–R/11).

Five large blocks from the lower course of the stone foundation are still preserved at the southeast corner and along the south side of the "palace." The easternmost block still supports remains of the 42 cm thick corner block of the paving course. The surface of this stone (at 45.75 m above NN) has a groove for the insertion of the southeast corner block of the temple wall. This piece is of great importance, because it is the only known paving stone still in position in the entire pyramid complex. The stone also shows that the foundation platform of the "palace" stood about 15 cm higher than the surrounding area.[322]

It is remarkable that the socket on the top surface of the cornerstone is not curved for the insertion of a corner torus, but instead has a sharp right angle. This detail reveals that the exterior of the "palace"—and probably the entire south temple—was not articulated with the usual torus/cavetto cornice but had plain corners and upper edges. This assumption is supported by the total lack of such elements in the area of the south temple, and by the discovery of parapet blocks that might have surrounded the temple roof (pp. 101–2).

TRENCH BETWEEN THE SOUTH TEMPLE AND THE LATER SOUTH ENCLOSURE WALL (SQUARES N–O/13)

A large, east-west-oriented debris mound covered the area north of the south outer enclosure wall and petered out to the west. In 1992, we cut a 10 m wide trench through the debris that lay roughly behind projections 12–14 of the enclosure wall, hoping to find architectural remains of the "south building" indicated on De Morgan's plan. Only clean *gebel* covered by a half meter of windblown sand was found, on top of which were the parts of the later south enclosure wall that had collapsed during an earthquake (p. 89). A large quantity of south temple debris sat on top of both the brick stratum and the sand. It consisted of a dense accumulation of limestone chip, broken brick, sand, architectural pieces, relief fragments, some of which were stained by black soot, and New Kingdom potsherds. Since the debris is not clearly stratified, it did not result from a gradual accumulation of material, but apparently was piled up over a short period of time, presumably in the late Ramesside period, when the temple was demolished.

ARCHITECTURAL ELEMENTS

(figs. 34–35, 38; pls. 137–49)

In addition to a large quantity of relief fragments (pp. 142–45), we found a considerable number of significant architectural elements. As is to be expected, only those elements were preserved that either were impractical to reuse or were broken off during the destruction. Complete building blocks were rarely overlooked or left in position by the robbers.

Papyrus-Bundle Columns

(frontispiece; pls. 137–40)

Bibliography: Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1992–1993," *Orientalia* 63 (1994): pp. 386–87, fig. 27

About twenty large and numerous smaller fragments of limestone papyrus-bundle (or cluster) columns were collected in the southeast court, mainly in square L/15, but also between the south temple and the later south outer enclosure wall and even in front of the east chapel of queen's pyramid 8 (square M/21). Some of the fragments fit together. They seem to be the remains of several papyrus-bundle columns in two different sizes, with most of the fragments originating from the larger version.

The columns are of the standard type, with eight stems bound together at the upper end of the shaft by five horizontal collar bands, and the capital formed by eight, large, closed papyrus buds. Bundles of three smaller shoots lie between the large main buds, and their triple stalks reappear beneath the collar binding. The columns stood on flat, round bases 3 cubits (1.575 m) in diameter that were chamfered at the edge. A preserved fragment of one of the bases has a circular, 6 cm deep center mortise for the insertion of a corresponding tenon on the underside of the column shaft. The bundles of the shafts left their outlines on the otherwise smooth upper surfaces of the bases (pl. 139E). De Morgan found similar fragments and reports "dans l'angle du sud-est était autrefois un mastaba important dont les colonnes brisées . . . gisaient au milieu des décombres."[323]

On parts of the columns that were less exposed to the elements, bits of the original paint survive, permitting us to reconstruct the complete color scheme (see frontispiece). Fragments of the architraves supported by the columns were also found (p. 101).

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[321] See, for example, Rainer Stadelmann, "Totentempel und Millionenjahrhaus in Theben," *MDAIK* 35 (1979): pp. 303–21.

[322] The area to the east and the passage along the south side of the "palace" are paved with bricks covered with *muna* at a level 45.59–45.62 m above NN.

[323] De Morgan, *Dahchour* I, pp. 78, 81, fig. 199.

Base: black
Eight main stems: green with red leaves
Hanging stalks: green with red leaves
Collar binding: bands alternating blue-red-blue-red-blue
Capital: green with red leaves; the smaller 3 x 8 bundles green with red leaves and a blue-red-blue-red-blue collar
Abacus: sides and underside blue
Architrave: vertical faces blue and on one or both sides yellow inscriptions in sunken relief, framed above and below by horizontal borders; as far as we could see, narrow bands along the lower edge and the undersides of the architraves were unpainted

The height of the columns could not be measured directly, and working with disconnected fragments necessarily carries an element of uncertainty. However, from the dimensions of larger single pieces, and from comparison with the few existing drawings of complete columns from late Twelfth and Thirteenth Dynasty sites, we were able to establish a convincing reconstruction. Using Lepsius's reconstruction of the nearly contemporary columns from the Amenemhat III complex at Hawara,[324] one may assume that the columns at Dahshur were 4.20 m high (including abacus), plus an estimated additional 15 cm for the (partially preserved) base.

The two or three drums that formed the shaft and the two drums that formed the capital were connected with tenons or cramps, as can be seen from the shallow, round mortises in the center of the upper block surfaces.[325] We did not find drums with their lower surfaces intact, so that the method used to join them could not be ascertained. The stone robbers split the drums vertically into halves or quarters, but they left many of them behind, probably because these unevenly shaped pieces could not be easily reused.

A few fragments suggest that there may also have been slightly smaller papyrus-bundle columns. Their diameter at the lower end of the capital is 60 cm, as opposed to the larger columns that have a diameter of 65–66 cm. Each collar band is 4.5 cm wide.

The fragments of the main stems of the columns are still covered with a large number of New Kingdom visitors' graffiti, similar to those found by De Morgan.[326] The graffiti show that the columns, and the building to which they belonged, must have stood until the time of Ramesses II.[327] As all inscriptions were on the lower parts of the columns, these sections must have been clean and not covered with sand. At a later point, perhaps toward the end of the reign of Ramesses II, the structures were demolished and the stones removed and presumably reused elsewhere.

Lotus-Bundle Columns

(pls. 141, 142c)

Directly under the sand covering the "palace" area (squares Q–R/16–17), three small fragments of limestone columns were collected, which undoubtedly originate from a rare lotus-bundle (or cluster) column. On the neck of the column, a single stalk hangs down between the two larger main stems. The hanging stalk has a curved lower end, which is quite distinct from the flat lower ends of the three smaller shoots that appear beneath the collar binding of a papyrus column. Remains of paint are quite well preserved on two fragments, revealing that the main and the smaller hanging stalks were painted green. From the few available dimensions, one can estimate that the diameter below the collar bands was 64 cm, similar to the larger papyrus-bundle columns, suggesting that they were also about 4.20 m high.

In 1998, a fourth fragment of a lotus capital was found in the shallow debris above the east outer enclosure wall (square U/17). The fragment includes the lower end of a semicircular segment of the clustered capital with a diameter of about 25 cm. The segment was obviously split from the capital's core because the rounded protrusion was unsuitable for reuse. The outlines of the leaves were delineated with fine, slightly raised carved strips along the edges, and traces of red and green paint are preserved.

The size and proportion of this fragment suggests that the column did not belong to the four-stalk (quatrefoil) type of lotus column that was used in the Middle Kingdom tomb 17 at Beni Hasan,[328] but instead had eight stalks, as was more common in the Old Kingdom.[329] The existing fragments are insufficient for a reliable reconstruction of a whole column. The reconstruction on plate 141 is therefore based on the shape and size of similar, better-preserved papyrus-bundle columns.

The findspot of all four fragments suggests that the east half of the south temple, and possibly the forecourt, was the origin of the lotus columns. Most of the papyrus-bundle column fragments were concentrated in the southwest area of the temple. They may originate from an interior court or a hypostyle hall in the actual temple house.

Fasciculated Columns

(fig. 34)

In 1990 we noticed half of a limestone column drum with a diameter of 63–64 cm on the surface of the upper end of the causeway (square W/17). The stone surface had eroded, but one could still distinguish a cluster of twelve vertical, 5.5–6 cm wide, slightly curved fascicles, with a flatter thirteenth fascicle, 10.8 cm wide in the center, perhaps for a text. There may have been twenty-six fascicles altogether, and they were certainly convex and not channeled with chamfered edges, as is known from polygonal pillars (wrongly called "proto-Doric").[330] The closest parallel for this type of multifascicle column is the support in the entrance hall of the Djoser complex.[331] The appearance of this ancient column type in a Middle Kingdom monument is quite unexpected, and must be understood as a direct copy from a Third Dynasty prototype. Its original location in the complex of Senwosret III remains unknown.[332]

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[324] *LD* I, p. 47, text vol. 2, pp. 16–17 (limestone and granite). Papyrus-bundle columns are quite frequent in Egyptian architecture. Other Middle Kingdom examples are found in the pyramid complex of Amenemhat III at Dahshur (Arnold, *Amenemhet III*, pp. 62–63, pl. 60); the temple of Amenemhat III at Medinet el-Faiyum (Labib Habachi, "Une 'vaste salle' d'Amenemhat III à Kiman-Farès [Fayoum]," *ASAE* 37 [1937]: pp. 85–95); the temple of Amenemhat III at Bubastis (Édouard Naville, *Bubastis [1887–1889]* [London, 1891], p. 11, pls. 7, 53); the temple of Amenemhat III at Medinet Madi (Rudolf Naumann, "Der Tempel des Mittleren Reiches in Medinet Madi," *MDAIK* 8 [1939]: pp. 185–89); the Thirteenth Dynasty temple at Medamud (F. Bisson de la Roque and J. J. Clère, *Rapport sur les fouilles de Médamoud: Fouilles de l'Institut Français d'archéologie orientale du Caire [année 1927]* [Cairo, 1928], pp. 77–83).

[325] They are 17–19.5 cm in diameter, 3.5–7 cm deep, and contain remains of plaster.

[326] De Morgan, *Dahchour* I, pp. 78–79, figs. 190–95.

[327] The Middle Kingdom graffiti will be published by Felix Arnold, and those of the New Kingdom by James P. Allen.

[328] Percy E. Newberry, *Beni Hasan*, Archaeological Survey of Egypt, pt. 2 (London, 1894), pls. 9–10.

[329] For example, Ludwig Borchardt, *Das Grabdenkmal des Königs Ne-user-Re* (Leipzig, 1907), pp. 66–68, pls. 4, 13; Miroslav Verner, *Forgotten Pharaohs, Lost Pyramids: Abusir* (Prague, 1994), pp. 178–79. For Old Kingdom columns reused in Memphis, see W. M. Flinders Petrie, *Memphis* I, British School of Archaeology in Egypt and Egyptian Research Account Fourteenth Year, 1908 (London, 1909), p. 10, pls. 3, 25; idem, *The Palace of Apries (Memphis II)*, British School of Archaeology in Egypt and Egyptian Research Account Fifteenth Year, 1909 (London, 1909), p. 14, pls. 18–19.

Architraves

(frontispiece; pl. 143A)

In spite of the relatively large number of columns, few fragments of architraves have survived. Apparently the rectangular architraves, as well as the roof slabs, were valued by the stone robbers and were completely removed. Two large pieces that join together were preserved in square M/15, and show that the total height of an architrave was about 70–71 cm; the full width of the block was not preserved. The fragments come from the end of an architrave, and would have formed half of the corner. The corner joint was for the most part cut obliquely, because in order to avoid a joint dividing the extreme outside corner, it was moved 16.5 cm to one side. The vertical faces of the architraves were painted blue; the sunken inscriptions were painted yellow and were framed by horizontal yellow borders. A 6 cm band along the lower edge was left unpainted, as was perhaps the bottom surface. Since the architrave fragments were found in the same area as the remains of the papyrus-bundle columns, one may assume that they belonged to the same part of the temple.

Parapet and Other Wall Blocks

(pls. 142a, 145–47, 148B)

Along the south edge of the south temple were found seventeen partial and complete carefully dressed limestone blocks, which may have belonged to a parapet wall with a curved top.[333] They were certainly prepared for removal, but had been abandoned. As they were found lying in roughly the same area, some close together, they may have belonged to the same part of the building, probably the south exterior wall and the southwest corner. One may assume that a parapet surrounded the entire roof terrace of the temple.[334]

The 1.05 m high parapet consisted of two courses of up to 1.75 m long blocks that were connected by full-length mortises-and-tenons. The tenons were carved along the undersides of the upper blocks, the mortises chiseled into the top surfaces of the lower ones.[335] The tops of the upper blocks are curved and both sides slope slightly. A recurring feature is an approximately 1.5 cm thick panel-like protrusion on the outer surface of the lower course. The protrusion runs along the upper edge of the building, about 60 cm below the top of the wall. Block 13 suggests that the protrusion was 60 cm wide, and corner block 14, which was actually found at the southwest corner of the south temple, shows that the protrusions were on both sides of the building. The protrusions of the corner block started 15 cm from the actual corner. It is possible that the protrusions were bossages that would have been carved into inscriptions, similar to the horizontal texts on the exterior walls of the pyramid temple (pp. 133–37). If this is the case, the areas were left unfinished.

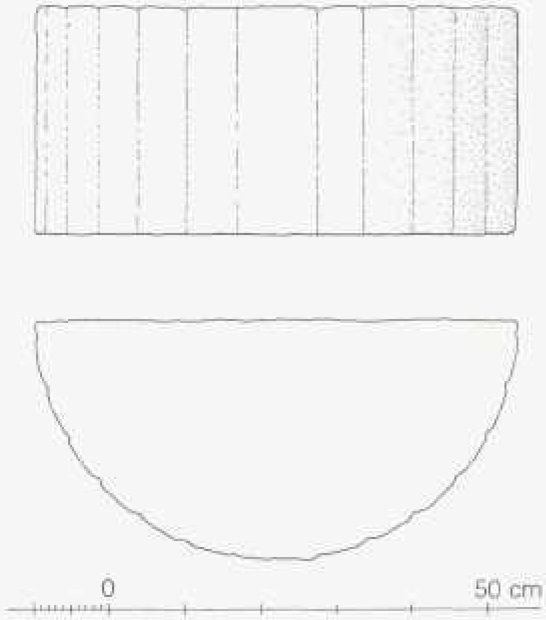

Fig. 34. Fragment of a fasciculated column found on the surface at the upper end of the causeway. Scale 1:10. Drawing D.A.

1. Parapet block (pls. 142a, 146B). A completely preserved patinated block 1.75 m long was found in square L/15. The top is curved, the sides slope slightly, and the rough underside has two huge elongated tenons that would have been inserted into a mortise. The direction of a well-cut mortar groove at one short end suggests that the curved part of the beam was on top, so that the block formed a 55 cm high and 46 cm thick parapet, which was inserted into another block.

2. Parapet block (pl. 146A). An incomplete parapet block similar to number 1 was also found in square L/15; its maximum preserved length is 1.55 m. This block has a shorter tenon with a rounded head. The patinated block is 50 cm thick and 52.5 cm high. Blocks 1 and 2 seem to have bordered a horizontal construction, such as a podium or roof, rather than a sloping ramp, because the short ends of the blocks are not obliquely cut. One would assume that these stones sat on top of another course or two, raising the height of the parapet to perhaps 2 cubits (1.05 m) or even 3 cubits.

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[330] French *colonne cannelée*, German *kannelierte Säulen*, see Gustave Jéquier, *Manuel d'archéologie égyptienne: Les éléments de l'architecture* (Paris, 1924), pp. 177–84.

[331] French *fasciculée*, German *gerippte Säulen*, see Jean-Philippe Lauer, *La pyramide à degrés: L'architecture*, vol. 2 (Cairo, 1936), pls. 40–48, 94. For a reconstruction, see Ricke, *BemerkungenAR* I, pp. 71–73, frontispiece.

[332] There is a slight possibility that the fragment originates from an otherwise lost superstructure of the Third Dynasty tomb shafts in the north court, see here pp. 107–8.

[333] Stones with similar curved tops were found in the Amenemhat III complex at Dahshur (Arnold, *Amenemhet III*, pp. 63–64, pl. 61A–B). Block B also had a tenon on its underside.

[334] The roof of the pyramid temple of Amenemhat III at Dahshur seems to have been surrounded by both a cavetto cornice and a parapet wall (Arnold, *Amenemhet III*, p. 63, pl. 61).

[335] This method was already used to attach the curved cover slabs of parapet walls in the Djoser complex, see Jean-Philippe Lauer, *La pyramide à degrés: L'architecture*, vol. 1 (Cairo, 1936), p. 173, fig. 196.

3. Parapet block (pl. 145B). Part of another block found in square L/15 has a 7 cm deep and 14 cm wide mortise groove that fits into the tenons of blocks 1 and 2. This block, which is patinated on both sides, comes from the lower course of a 47 cm thick parapet. The outer side is articulated by a protruding ledge.

4. Parapet block (not illustrated). This fragment of a parapet block with a curved top was found in square K/15. It is 45.7 cm thick, and it is preserved to a height of 42 cm and a maximum length of 61 cm.

5. Parapet block (not illustrated). This fragment, also from square K/15, may originate from the same block as number 4. Its maximum preserved length is 32 cm.

6. Parapet block (not illustrated). This fragment of a patinated parapet block with a curved top and a socket for a patch was found in square R/19.

7. Parapet block (not illustrated). Part of a patinated parapet block with a curved top was found in square M/13. The piece is 43 cm thick at the top and apparently has two sloping sides; the maximum preserved length is 59 cm.

8. Parapet block (not illustrated). This piece of a patinated parapet from square K/15 has a sharply curved top. It is 45.5 cm thick, has a maximum preserved height of 37 cm, and a length of 73.5 cm.

9. Parapet block (not illustrated). This part of a patinated parapet block from square M/15 has a shallow curved top and is 62.5 cm thick. The block has a sort of overhang at the end that fit into a corresponding recess in the next block.

10. Parapet block (not illustrated). This unusually thick (1.05 m) patinated piece was found in square R/19. It has a curved top and a length of 62 cm.

11. Parapet block (not illustrated). The mortise on the upper side of this block from squares K–L/15 corresponds to the tenons preserved on parapet blocks 1 and 2, suggesting a connection between these blocks. The piece is 47 cm thick at the top and has two(?) sloping sides; the maximum preserved length is 1.40 m, and the maximum preserved height 60 cm. One end of the upper surface has half a cramp socket. On one of the long sides, a narrow ledge protrudes from the surface, about 10 cm below the top.

12. Parapet block (pl. 145A). The short length (53 cm) of this patinated block from square N/13 indicates that it was lowered into position after all the other blocks in the row had been put in place. The block is 47 cm thick at the top and has two sloping sides. One side has a narrow ledge 17.5 cm below the top. At the top of one of the ends is a deep mortise.

Along the south edge of the south temple, we found two blocks that, based on their size, material, and surface patina, seem to have belonged to similar structures, probably exterior chapel walls. They lack curved tops.

13. Corner block (pl. 147A). This part of a corner block, found in squares M–N/15, has a patinated, slightly raised panel-like projection, 60 cm wide, on what appears to be its front. One side of the block is 49.5 cm thick and the other 33.5 cm thick. On plate 147A it is assumed that the projection was vertically oriented. The side with the projections and both sides that formed the inside corner have patina and must have been the only visible surfaces. The faces of the inside corner meet at an oblique angle. A mortise for a patch stone remains at one end of one of the inside faces.

14. Corner block (pl. 147B). This part of an L-shaped corner block from square K/15 has sloping and patinated sides with shallow, panel-like projections on both outer faces. The corner is badly damaged. Two small square patches and several rectangular ones were inserted into the larger outer face of the "L"; three irregularly placed holes were also drilled into it.[336] The larger inside surface of the "L" has a patinated ledge, which suggests that it was visible. The block must have stood at the corner of a freestanding structure.

Doorframes

(pl. 148A, C–D)

Several fragments of blocks with the traditional painted door pattern are preserved.[337] They must have belonged to the numerous doors inside the temple.

1. Doorframe (pl. 148C). This piece from square K/15 has a maximum preserved length of 1.37 m and is 34 cm thick and 63 cm high. The patinated block has a curved side. On one side there appears to be a 90° inside corner, but unfortunately it breaks off after 4 cm. There are sockets for patch stones at one end of the curved part and along the longer preserved side of the inside corner.

2. Doorframe (pl. 148D). This block from square L/15 has a curved side, suggesting that it belonged to a doorframe. The width of the block is only 34 cm, and the side walls seem to be vertical. One side has a 90° inside corner about 61 cm away from the curved end. The larger side is 97 cm long and has a patinated surface.

3. Doorframe (not illustrated). One surface of this block, found in square L/15, has a shallow curve and is painted black. One short side is also black, while the other is yellow. The fourth side is broken, so that it cannot be determined how this piece was joined to the next block. That the paint is so well preserved might indicate that it was protected by a roof. Although it appears to be a doorframe, the black color on the curved surface is unusual and the presence of black and yellow on opposite faces is difficult to explain.

Fillet Stones

(pl. 144)

Examples were found of fairly long fillet pieces, which were inserted into a complicated groove system used between the roof slabs in order to prevent humidity from entering the joints (a similar system was used in the pyramid temple, see pp. 52–53). Their 35 cm wide upper surfaces curve slightly and protrude on both sides. These 7.5 cm wide projections have mortises on the undersides that fit into corresponding tenons on the roof slabs. The undersides of the vertical sections of the fillets have long, deep mortises in the center, which clamped together the tenons of the two roof slabs below, and projections on either side. Extensive remains of plaster show that the blocks were carefully inserted in order to function correctly. One fillet stone had grooves that would have been used to lower it into position; it must have been the final stone laid in the row and it would have fit neatly into a narrow interstice.

The curved tops of the stones rose about 4–5 cm above the roof slabs, forming a series of protrusions that created shallow basins between the slabs. Rainwater must have collected in these basins and then been properly drained. It must be assumed therefore that the upper surface of the roof had a slight inclination, and that there must have been outlets that enabled the water to flow between basins (see "Drain Stones" below).

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[336] The holes are 2.2–3.7 cm deep and 1.2–1.5 cm in diameter.

[337] The reveals are painted with alternating green and yellow horizontal bands. Such decoration regularly covers the thickness or reveal of a door, an area that would be hidden when the wood door was open.

We also found a fragment of a fillet with a central vertical slit, which was probably a light opening. Such slits were cut into the joints between some of the roof slabs. On the curved top of the fillet, a ledge surrounded the slit and prevented water from entering the opening. Later examples of similar light openings are known from the temples of Sety I at Qurna and Abydos and Ramesses III at Medinet Habu.[338]

When the temple was destroyed, the stone robbers chiseled off the side projections of the strangely shaped fillet stones in order to reuse their rectangular core, and many fragments of the side projections have been found. Some of the stripped-down core blocks were also left behind, and because of their shape, they may be confused with the undersides of drain stones (see below).

It was previously thought that the method of sealing roof joints with fillets appeared only during the New Kingdom. Numerous examples that used a simpler technique exist in the temples of Sety I at Abydos and Qurna and Ramesses III at Medinet Habu.[339] These fillet stones have simple T-shaped cross sections and are sunk into corresponding grooves that lack the elaborate mortise-and-tenon connections of the Senwosret III examples.

Roof Tiles (?)

(figs. 35, 38)

In the debris of the south temple were remains of several limestone slabs that can be explained only as a kind of roof tile, unusual objects that seem to appear here for the second and possibly last time in Egyptian architecture. The slabs are about 25 x 35 cm and 3–8 cm thick. Upper and lower surfaces are curved, and the undersides have a tenon. Their only imaginable architectural use would be as stone fillets, covering roof joints and either preventing water from entering the building or creating a surface articulation in the form of gently curving ridges. Since the undersides of the tiles are also concave, one can only assume that the stone roof beneath had a curved surface. One of the tiles must have formed the juncture of two ridges, as it had the form of a Greek cross. Numerous examples of buildings with vaulted roofs are known from the Djoser complex,[340] and one roof seems to have been articulated by ribs laid across a barrel vault.[341] Unfortunately, no other fragments have been found so far to suggest the shape of Senwosret III's interesting structure. One has to expect, however, that a vaulted shrine towered over the surrounding flat roof of the temple (p. 122; fig. 38).

DIMENSIONS OF ROOF TILES (in centimeters)
For the locations indicated by the letters, see figure 35

A	*B*	*C*	*D*	*E*
4.0	8.1	7.2	4.5	23.4?
3.7 + x	6.6 + x	8.0?	2 + x	23.4?
4.5–4.7	10.2	8.7?	3.1 + x	29?
3.8–4.0	6.5	7.1	4.1	20.2
3.7	8.9	?	?	?
3.0–4.3	6.7	?	?	?
3.9	8.6	?	?	?

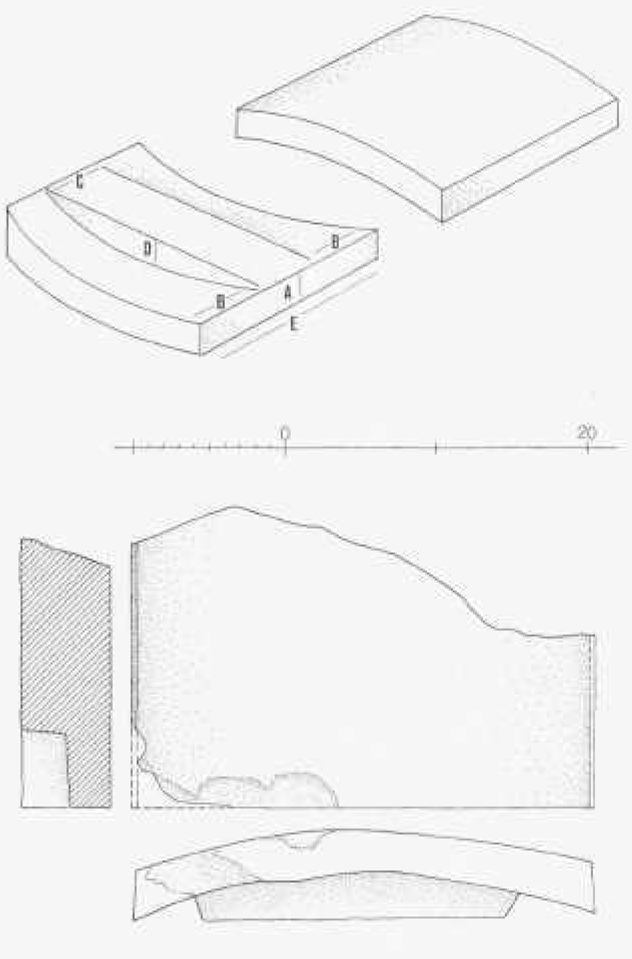

Fig. 35. Stone roof tiles (?) from the south temple. Upper: Reconstructions of the top and underside. Lower: Preserved example. The letters refer to dimensions in the chart. Scale 1:2. Drawings D.A.

Drain Stones

(pl. 144, lower)

Two different types of drain stones were found in the south temple. The simpler version consists of a fairly long block with a deep, narrow channel cut into the upper surface. Two examples of this type were found: a 117 cm long, perfectly preserved piece with a 7 cm deep and 16 cm wide channel, and a 62.5 cm long broken block with a chiseled-off channel only 2.5 cm deep. Both blocks may have belonged to the drainage system that exited the southeast court through the later south enclosure wall (pp. 90–91; pls. 122a–b, 125).

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[338] Somers Clarke and Reginald Engelbach, *Ancient Egyptian Masonry* (London, 1930), p. 155, figs. 175, 180; Uvo Hölscher, *The Mortuary Temple of Ramses III*, pt. 2, vol. 4 of *The Excavation of Medinet Habu*, University of Chicago Oriental Institute Publications, vol. 55 (Chicago, 1951), pp. 31–32, figs. 33, 37.

[339] Uvo Hölscher, *The Mortuary Temple of Ramses III*, pt. 2, vol. 4 of *The Excavation of Medinet Habu*, University of Chicago Oriental Institute Publications, vol. 55 (Chicago, 1951), pp. 31–32, figs. 33, 37; Somers Clarke and Reginald Engelbach, *Ancient Egyptian Masonry* (London, 1930), p. 155, figs. 175–78, 180. The grooves on the roof of the temples of Sety I at Qurna and Abydos were not water channels as suggested on figures 177–80, but were intended to be sealed with fillets.

[340] Lauer, *Step Pyramid*, vol. 2, pls. 68, 76–77, 79A.

[341] Grooves for the insertion of the rib stones seem to appear in Lauer, *Step Pyramid*, vol. 2, pl. 72[2], but no details are given. A brick mastaba of the First Dynasty found southeast of Giza had a round-topped roof decorated with blue ribs, see W. M. Flinders Petrie, *Gizeh and Rifeh*, British School of Archaeology in Egypt and Egyptian Research Account Thirteenth Year, *1907* (London, 1907), pp. 3–4, pl. VI.

The second, more sophisticated system is represented by at least four blocks, which are nearly cubical, each having three parallel drainage channels on top. These blocks were used to carry water over the fillets that sealed the roof slabs (see above), and in essence they functioned as miniature canals between the basins. The blocks have wide mortises on the undersides that lie at right angles to the channels, so that in a three-quarter view the stones have a bridgelike appearance. The mortise would have spanned the joint between two roof slabs.

1. A complete drain stone with remains of three channels was found in square M/13. The underside has a mortise to clamp together the tenons of the roof slabs below.
Dimensions: L. 35.5 cm; W. 30.5 cm; H. 20.0 cm

2. A drain stone with remains of three channels was found in square N/13. The underside has a mortise to clamp together the tenons of the roof slabs below.
Dimensions: L. 45 cm; W. 34 cm; H. 28 cm

3. A drain stone or conduit block with remains of three parallel channels was found in square N/13. The underside has a mortise.
Dimensions: L. 35.4 cm; W. 29.8 cm; H. 19.6 cm

4. Part of a drain stone with two remaining channels originates from square N/13. The underside has a mortise to clamp together the tenons of the roof slabs below.
Dimensions: L. 18.4 cm; W. 19 + x cm; H. 15 + x cm

Staircases

(pls. 142b, 149)

Five pieces of staircases were found in the center of the south and west sides of the south temple, each consisting of one roughly dressed limestone block into which were cut steps 38 cm wide, 14 cm high, and 25–28 cm deep. The best-preserved block has three steps, with the remains of a fourth. The undecorated borders flanking the steps on two blocks have mortise sockets for wood objects (railings?). The blocks are so poorly fabricated that one would expect that they were hidden behind walls leading up to the temple roof. However, the staircase would have been so narrow (55 cm) that ascending or descending would have been awkward. We therefore have to reconstruct freestanding steps leading up to a shrine or statue niche. Since each shrine would have had its own staircase, at least five shrines must have existed.

The rough surfaces of the steps could partially result from exposure to weather, heavy usage, and/or accidental damage. The possibility that the steps were covered with another material such as (gilded?) metal cannot be completely discounted.

Granite Shrines

(pl. 143B–C)

Two large granite slabs and several smaller fragments found in the center of the west end of the south temple (square K/17) seem to originate from a shrine that was not monolithic but built of blocks. The larger block was part of the floor of the shrine; plaster marks on the top surface indicate the position of the walls. The thickness of the block varies from 38–48 cm and the underside is irregular.

A smaller block decorated with shallow stars in fine relief was part of the ceiling. Traces of green paint remain on the background. The star pattern is 1.05 m wide and is delineated on both sides by undecorated areas that rested on the side walls. A small fragment of a torus and several inscribed pieces found in the same area show that the shrine was crowned by a cavetto cornice and had an inscription on the facade. The inscription, rendered in sunken hieroglyphs painted green, included the titulary of the king arranged in vertical columns. Since the area has not yet been fully excavated, it is possible that more fragments will be discovered, and we will therefore present a reconstruction in a future volume. The possibility also exists that we have the fragments of more than one shrine. If so, the staircases described above may have provided access to them.

Dimensions: Floor block: Maximum 131 x 154 cm;
Th. 34–48 cm
Ceiling block: L. 180 cm; Maximum W. 59 cm;
Th. 52.5 cm

THE RECONSTRUCTION

Based on the evidence thus far provided by the foundations, the architectural elements, and the relief decoration, as well as from the seeming absence of other elements, only a preliminary assessment of the south temple can be provided. The lack of any fragments of tori and/or cavetto cornices is extraordinary, since all royal complexes from the time of Sahure onward include cavetto cornices,[342] and torus/cavetto cornices are usually chipped off and left behind by stone robbers. We must therefore conclude that the south temple was not crowned by a cavetto cornice, and that instead it may have had battered walls topped by a parapet wall with a curved top (pp. 101–2).[343] The interior of the monument seems to have consisted of a forecourt, a "palace" at the southeast corner, and the main temple house. The front of the temple may have been enhanced by an entrance hall or surrounded by porticoes with lotus-bundle columns.

One or more colossal granite statues of the king, fragments of which have been found, may be reconstructed in the court, probably to the side of the entrance that leads into the main sanctuary to the west.[344] If the temple was connected with the *sed*-festival rituals, we might even expect colossal standing statues of the king of the so-called Osiride type, similar to those of Senwosret I and several New Kingdom rulers.[345]

In the north wall of the front section of the temple was the beginning of the passage that led to the inner court that surrounded the pyramid.

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[342] Borchardt, *Sahu-re*, pp. 67–70, fig. 87. For more examples, see Dieter Arnold, *Lexikon der ägyptischen Baukunst* (Zurich, 1994), p. 108 ("Hohlkehle und Rundstab").

[343] The Senwosret III temple at Qasr el-Sagha also lacks cavetto cornice/torus elements and was apparently crowned by a parapet wall, see Dieter Arnold and Dorothea Arnold, *Der Tempel Qasr el-Sagha* (Mainz, 1979), pl. 28.

[344] Some pieces of a 7.6 m high granite statue of Amenemhat III were also reported from his pyramid complex at Hawara, see Petrie, *Labyrinth*, p. 31, pl. 27 [1–2]. The remains of other colossal statues from the period include the approximately 1 m high gray granite heads of Amenemhat III from Bubastis, now in the Egyptian Museum, Cairo (JdE 28573, CG 383), and in the British Museum, London (AE 774, 1063).

[345] Colossal pillar statues have also been found at Karnak and Abydos (Senwosret I), and at the mortuary temples of Hatshepsut, Thutmosis III, Ramesses II, and Ramesses III at Qurna, see Christian Leblanc, "Piliers et colosses de type 'osiriaque' dans le context des temples de culte royal," *BIFAO* 80 (1980): pp. 69–89; idem, "Le culte rendu aux colosses 'osiriaques' durant le Nouvel Empire," *BIFAO* 82 (1982): pp. 295–311.

The south wall of the front section was formed by the facade of the "palace," which was relatively small and perhaps had a lower roof than the court. The interior of the "palace" could not have had many subdivisions, though we did find an east-west division down the center of the brick subfoundation. Perhaps there was a small columned forecourt or hypostyle hall, followed by a row of shrines along the south wall. A concentration of quartzite fragments suggests that the shrines were made of this material. Such shrines could have housed royal statues, numerous fragments of which have been found in the area.

The west side of the main temple remains the least understood section. We know that the roof was at different levels, connected by complicated drainage systems. Fragments of papyrus-bundle columns 8 cubits high (4.20 m) suggest a second court or a hypostyle hall. Along the south side were many fragments of parapet walls (pp. 101–2). There are also blocks from a granite shrine and other structures with panel-like raised outside surfaces and arched roofs, suggesting a group of possibly freestanding individual chapels rather than a succession of rooms. Several small staircase blocks may have led to a shallow platform that carried a row of shrines, perhaps similar to the temple of Senwosret III at Qasr el-Sagha.[346]

From the subjects of the relief decoration, we can surmise that there were scenes with large-scale deities as well as an offering chamber for the king, who is depicted seated at an offering table (p. 143; pl. 162c–d). No fragments of a false door have been recovered and there are no indications of a vaulted ceiling, which would be expected in an offering chamber.

Sections of the South Area

THE DIVIDING WALL BETWEEN THE SOUTH TEMPLE AND THE SOUTH ENCLOSURE WALL (SOUTH DIVIDING WALL)

(fig. 33; plan III)

A brick wall about 2.10 m wide (2.35 m wide in the foundation) was added after the construction of the south temple at the west end of its south side. This wall separated the space south of the temple from the rest of the court, creating an area enclosed by the later outer enclosure wall, the south temple, and the "palace." The area was accessible through the narrow passage between the enclosure wall and the "palace," and perhaps through a door in the south temple. The wall was plastered over with mud and whitewashed, at least on the east side; because its surface has been destroyed, we could not determine if the west side had been plastered. The date of the wall is uncertain, but it may have been a late Middle Kingdom or even a New Kingdom addition to the complex. Was it built in connection with the north-south dividing wall further west (see below)?

The excavation of the north and south ends of the wall in 1992 revealed that the wall was a patchwork construction. The north end of the wall was deeply dug into the retaining wall around the foundation pit of the south temple, and was badly damaged when the temple's stone wall was taken down. The south end leans against the north side of the later outer enclosure wall. The west side of the wall has a different foundation from the east. In the west, the foundation is 1.40 m or eleven courses deep and sits on sand. In the east, after five courses covered with white mud plaster, a foundation course clearly protrudes 6 cm. At this level (45.53 m above NN), a *deka* connects to the east, representing the surface of the enclosed area south of the south temple.

THE NORTH-SOUTH DIVIDING WALL

(pl. 150)

The south court was later divided into southwest and southeast sections by a north-south dividing wall. The wall was probably built in order to separate the southeast court and the south temple from the southwest court, which perhaps was prepared at the time for use as a cemetery.

The wall was originally recorded by De Morgan. In 1992, we opened a trench at the juncture of the north-south dividing wall and the south side of the original brick outer enclosure wall (square I/21). In this area, the wall was about 2.08 m thick (4 cubits = 2.10 m), meaning that it was certainly too narrow to be paneled, although it was whitewashed on both sides. More important was the observation that the original south outer enclosure wall had been completed and whitewashed before the north-south dividing wall was added. Unfortunately, none of the projections and recesses of the original south outer enclosure wall survive in the area, but a few traces on the surface of the wall and the pattern of the paneling system suggest that the connection of the two walls was established between a projection and a recess (pl. 150). At the south end (square H/13), the 2.10 m wide dividing wall was built on a foundation 2.40–2.70 m wide that protrudes on the east side. The central section of the wall has not yet been excavated.

THE SOUTHWEST COURT

The nearly square southwest court was created later by the addition of a north-south dividing wall that separated it from the south temple area. One may assume that this isolation became necessary when a row of five shafts was dug along the north wall. De Morgan opened the shafts and found them completely empty. To the south of the bottom of the shafts, opened single or double chambers with a canopic niche at the south end of the east wall. As far as one can judge from the miniature plan published by De Morgan, the tombs were of Middle Kingdom date.

According to De Morgan, the southwest court was covered with debris containing fragments of Tura limestone, granite, and "grès de la profondeur," partially from the ancient excavation of the five shafts.[347] An old aerial photo of Dahshur in the

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[346] Dieter Arnold and Dorothea Arnold, *Der Tempel Qasr el-Sagha* (Mainz, 1979), pl. 5a–c.

[347] De Morgan, *Dahchour* I, p. 78.

Egyptian Department of the Metropolitan Museum seems to indicate that De Morgan also carried out a major excavation in the center of the court, which produced a ring of debris.

From the present appearance of the surface, which is today covered by the depressions and debris mounds of De Morgan's test holes, it is clear that accumulations of limestone chip are prevalent along the south and west sides of the court, while the northeast quadrant is covered only with sand and pebbles. This pattern may indicate that De Morgan hit layers of limestone in the south and west, possibly originating from limestone constructions that may have been in those areas. Since no relief fragments were found on the surface or in a test trench made by the present excavators, one might conclude that any structures in the court were left either unfinished or undecorated. A single fragment from a black granite statue, found near the west wall of the court, might have been thrown there accidentally.

During the 1993 season, a 2.5 m deep test pit was dug in the center of the court (square F/17). Neither a building nor a subfoundation was struck. The excavated material consisted of a deep fill of builders' debris—mainly limestone chip, a few bricks, and even fewer fragments of granite and quartzite. The thick fill suggests that the natural desert surface sloped down to the south and had to be artificially raised to the level of the rest of the pyramid complex when the south court was added. The origin of the debris is unknown, but one might conclude that refuse from the construction of the original pyramid complex, probably from stonemasons' workshops and construction ramps, was used to level the court.

If the construction of the original pyramid complex was so far advanced that a brick chamber for a boat was built, it would have been located in what later became the north part of the southwest court. The row of five tomb shafts would have disturbed such structures, but the area west of the shafts would have been sufficient for a boat chamber similar to the one outside the southwest corner of the later outer enclosure wall (see below).

THE GATE IN THE LATER SOUTH OUTER ENCLOSURE WALL

(pls. 120c–d, 127)

Another important entrance into the complex led through the later south outer enclosure wall into the southwest court. There is no doubt that the gate was cut into the existing wall.

The gate itself is preserved as a 2.42 m wide gap in the brickwork. The breach reaches down to the lowest course of the brick subfoundation, which was used to support the now-missing stone threshold. Behind the front slab, a 32–35 cm rise in the brick foundation, which was created by the addition of two courses of irregularly set bricks, indicates that there would have been a second, thinner slab. We do not know how the doorframe or lintel were constructed, but one would expect that the frame was built of stone and that it supported either a stone lintel or a brick arch. The doorframe would have reduced the width of the doorway to only 2.5 cubits (1.31 m). In the inner part of the east side of the doorway is a niche, which is level with the higher section of the doorway. It is unusual to find such a niche in a doorway, and its function is unknown.

An open court or closed building 7.70 m wide (east-west) and 5.2 m deep (north-south) was situated directly behind the gate; part of a second enclosed space followed to the north. Remains of a brick pavement are preserved at the centers of both spaces. The function and date of the gatehouse are unknown. The brick walls in this area have been damaged by post–New Kingdom burial pits, some of them containing oval clay coffins.

The gate may continue an older tradition of approaching the pyramid complex from the south, as a transport road from this direction may have existed during the period of construction. The slope to the east of the complex, which led directly into the Nile Valley, was probably too steep for heavy transport work, while the wadi to the south sloped more gently, and could well have been accessible from the causeway embankment of Snefru's north stone pyramid. One would therefore expect that major construction roads and ramps came up from this south wadi.

THE BOAT BURIALS

(pls. 1, 151A)

Selected Bibliography: De Morgan, *Dahchour* I, pp. 81–83, fig. 203, pls. 29–31; Reisner, *Models*, pp. 83–87; Cheryl Ward Haldane, "Ancient Egyptian Hull Construction" (Ph.D. diss., Texas A & M University, 1993), pp. 202–36; Robert Partridge, *Transport in Ancient Egypt* (London, 1996), pp. 47–53

South of the southwest corner of the Senwosret III complex, De Morgan excavated a considerable group of boat burials, the largest of which was a 7 x 27 m brick structure, placed 8.5 m south of and parallel to the later outer enclosure wall. The interior was boat-shaped and covered with a brick vault 18.75 m long and 4 m wide, a splendid example of Pharaonic brickwork.[348] The vault of five brick rings rested directly on the edges of the cavity in the ground that held the hull, and it was probably covered with sand, hiding the structure under the desert surface. The east and west end walls were vertical and had the unusual thickness of over 4 m. The curved bottom of the chamber was carved from the *gebel*.

Since an 18 m long wood bark must have been placed inside before the vault was closed, and since the vault was complete when found,[349] one may assume that a boat burial had actually taken place, even though De Morgan does not mention that he found the remains of wood. An empty cavity in the desert surface indicates the area where the boat chamber was discovered (pl. 1).

The boat in the brick chamber was certainly meant to serve the king in the afterlife, and boat burials of this type are well known from Old Kingdom pyramids.[350] However, boat burials are rare in the Twelfth Dynasty. The only known parallels are a boat pit in the Senwosret I complex at Lisht (pl. 151B)[351] and two boat pits at the pyramid of Amenemhat III at Dahshur.[352]

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[348] See El-Naggar, *Les voûtes*, vol. 1, p. 148, vol. 2, fig. 173.

[349] As can be seen on De Morgan's photo (*Dahchour* I, pl. 28).

[350] See Mark Lehner, *The Complete Pyramids: Solving the Ancient Mysteries* (London, 1997), pp. 80, 109, 118–19, 155.

[351] Arnold, *Senwosret I*, vol. 3, pp. 52–53, pls. 64–65. The length of the boat (15.2 m) suggests that it belonged to the king and not to the nearby queen's pyramid 5.

[352] To be published by Dieter Arnold, *Der Pyramidenbezirk des Königs Amenemhet III. in Dahshur*, vol. 2, in preparation.

Five or six wood boats and a huge wood sledge were buried directly in the ground east of the boat chamber. De Morgan reports that by

> ... opérant des sondages de quatre et de cinq mètres dans les débris que j'ai découvert trois barques de dix mètres de longeur dont deux sont aujourd'hui dans le musée de Gizèh, trois autres barques semblables furent encore rencontrées dans les sables à 100 mètres environ au sud des premières, puis des traîneaux de bois et bien que les fouilles ne soient pas terminées en ce point, tout me port à croire que nous rencontrerons encore bon nombre de barques et de traîneaux. . . . L'une des deux barques du musée de Gizèh était peinte en blanc, l'autre en rouge; toutes deux, de même que leurs gouvernails à palettes, portaient des ornements multicolores. Les trois autres sont restées sur place enterrées sous le sable. Le temps ne m'a pas permis de les faire enlever.[353]

This short report on De Morgan's spectacular discovery does not answer the question of how many boats and sledges were actually excavated[354] and how many more may be buried in the sand. We know that De Morgan removed at least *four* boats and *one* sledge from the site, because these objects are in museum collections.

Wood Boat

Egyptian Museum, Cairo CG 4925
Bibliography: Reisner, *Models*, pp. 83–86, no. 4925
Dimensions: L. 10.20 m; W. 2.24 m

Wood Boat

Egyptian Museum, Cairo CG 4926
Bibliography: Reisner, *Models*, pp. 86–87, no. 4926
Dimensions: L. 9.90 m; W. 2.28 m

Wood Boat

The Carnegie Museum of Natural History, Pittsburgh CMNH 1842-1
Bibliography: Diana Craig Patch and Cheryl Ward Haldane, *The Pharaoh's Boat at the Carnegie* (Pittsburgh, 1990)
Dimensions: L. 9.20 m; W. 2.30 m

Wood Boat

Field Museum of Natural History, Chicago 31760
Bibliography: Frank J. Yurco, *Egypt: A Companion to the Exhibit "Inside Ancient Egypt"* (Chicago, 1992), pp. 38–39
Dimensions: L. 9.14 m; W. 2.44 m; Depth .91 m

Wood Sledge

Egyptian Museum, Cairo CG 4928
Bibliography: Reisner, *Models*, p. 88, no. 4928
Dimensions: L. 4.21 m; W. 78–89 cm

Based on the number of boats that can be accounted for, it seems clear that De Morgan left one or two boats, as well as one or more sledges at the site. The present expedition has refrained from further excavations in the area, because the potential discovery of more boats and sledges would require the construction of extensive storage and conservation facilities in the desert, which are not feasible at present.

The boats have been identified as funerary barks that would have been used to carry the coffin with the body of the deceased, funerary equipment, and members of the funeral party across the Nile.[355] Because of their participation in the royal funeral, the boats could no longer be used and had to be buried at the site. The sledge was probably used to transport the ships to the desert. The five or six ships and the sledge therefore represent part of the royal funeral procession.[356]

The North Court and the Archaic Tombs

(pl. 38)

Bibliography: De Morgan, *Dahchour* I, pp. 75–76; Georges Daressy, "Mastabas du nord," *BIE*, 3rd. ser., no. 5, year 1894 (Cairo, 1895): p. 199; Jean-Philippe Lauer, "Fouilles du Service des Antiquités à Saqqarah (secteur nord) (novembre 1932–mai 1933)," *ASAE* 33 (1933): pp. 165–66; Lauer, *Step Pyramid*, vol. 1, p. 42 note; PM III2, p. 885

Probably at the same time as the south enlargement of the original complex, a 15.5 m wide court (30 cubits = 15.75 m) was added to the north by extending the paneled brick outer enclosure wall (p. 89). Apparently the court did not contain any Middle Kingdom monuments, suggesting that it was built in order to give the enlarged complex specific proportions. It is unlikely that the addition of the north court had purely aesthetic motivations, but rather some mathematical considerations or calculations must have been important, such as the number of projections and recesses in the outer enclosure wall, cubit dimensions, or another unknown proportional relationship.

The only ancient constructions known to lie within the court are the two Third Dynasty tomb shafts excavated by De Morgan in the west part of the court. The shafts, designated D and F, are aligned north-south and are about 4 m apart; they were certainly constructed as a unit. They are described as deep, but the excavator did not include measurements. Both have 6–7 m long corridors leading to the west, but no chambers. Whereas the south shaft (D) ends with the west corridor, the north shaft (F) has an extension to the south. In each corridor, De Morgan found a small alabaster sarcophagus. One sarcophagus was found with its lid on the floor, and was apparently empty, while the other was intact and contained four alabaster vessels, which were lying on their sides and were stuffed with cloth.

Lauer was the first to date this find to the Third Dynasty. Comparing it to his discovery of a pair of alabaster sarcophagi under the Djoser Step Mastaba, Lauer speculated that the empty sarcophagus had housed the mummy and the second served as a chest for the four alabaster canopic jars.[357] One can even suggest that the unusual position of the sarcophagi under the Djoser Step Mastaba—the east one with its axis east-west and the west one with its axis north-south—may be repeated in the orientation of the two shafts at Dahshur. The south one could have housed a sarcophagus only along the east-west axis, while the north one might have had its sarcophagus in the north-south extension. Unfortunately, De Morgan's publication does not provide this level of detail.

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[353] De Morgan, *Dahchour* I, pp. 81–83.

[354] De Morgan's map (*Carte de la nécropole memphite* [Cairo, 1897], pl. 4) shows five boats in addition to the brick boat chamber.

[355] De Morgan, *Dahchour* I, p. 83; Björn Landström, *Ships of the Pharaohs: 4000 Years of Egyptian Shipbuilding* (New York, 1970), pp. 90–93; Diana Craig Patch and Cheryl Ward Haldane, *The Pharaoh's Boat at the Carnegie* (Pittsburgh, 1990), pp. 17–20.

[356] A strong argument for the existence of a royal burial in the complex! However see here also pp. 34, 36, 42, 43.

[357] J.-Ph. Lauer, "Fouilles du Service des Antiquités à Saqqarah," *ASAE* 33 (1933): pp. 165–66. The outside dimensions of the Saqqara sarcophagi are: a) 0.75 x 1.76 m and 0.85 m high and b) 0.765 x 1.80 m and 0.85 m high.

The rationale behind the placement of these shafts is unknown, but one can speculate that they belonged to an undiscovered structure of some importance, hidden under the debris of the northwest corner of the Senwosret III complex. Since queens of the Third Dynasty are considered to be the owners of alabaster sarcophagi, and since queens of this period seem to share the king's tomb, it is possible that a Third Dynasty royal tomb may be nearby. The existence of such a tomb at Dahshur would better explain King Snefru's choice of the area for two of his pyramids, and one can even speculate that it might have belonged to Snefru's immediate predecessor. According to our limited knowledge of the period, this ruler would have been King Huni, who can perhaps be identified with Horus *Qꜣj-ḥḏt*,[358] and whose tomb has not yet been located. Could a superstructure still have been visible when Senwosret III began his own complex? Was this structure perhaps even the model for his own unusual monument? If so, the question remains as to why he would have built his own complex directly above the older one. Was there so little room to the south that he had to push his complex as far north as possible? Since the area to the south slopes downward, the original south outer enclosure wall of Senwosret III occupies the most natural setting for this end of the complex.

We have not carried out any excavation work in this court, with the exception of a section over the mouth of the southernmost shaft (p. 60; pl. 38).

In addition to these considerations, the supposition that an early Old Kingdom cemetery existed in this area is supported by the following discoveries and observations.

1. A major group of monumental Old Kingdom mastabas lies near the southeast corner of the Senwosret III complex (pp. 15, 90).

2. In the 2000 season, a monumental tomb of the early Fourth Dynasty was found 105 m north of the northeast corner of the Senwosret III complex. This tomb, together with the two Third Dynasty shafts found by De Morgan, suggest that the above-mentioned Old Kingdom cemetery did not end at the southeast corner of the Senwosret III complex but continued to the north. A boundary stela of King Djoser was also discovered in the north Old Kingdom tomb.

3. Part of a fasciculated column, found in 1990 north of the causeway (pp. 100–101; fig. 34), is stylistically better suited to a Third Dynasty structure than to the Senwosret III complex.

4. The bricks of the Senwosret III complex are mixed with Old Kingdom potsherds, suggesting that substantial Old Kingdom dumps were somewhere in the area.

5. The architecture of the Senwosret III complex includes an exceptional number of direct references to the architecture of the Third Dynasty. One element, the T-shaped chamber (pp. 57–58; pls. 67–70, 72, 73c), may even be an older structure integrated into the Senwosret III complex.

One may, therefore, tentatively suggest that Senwosret III leveled a (royal?) Old Kingdom cemetery to increase the building space for his own complex.

Sarcophagus A

Egyptian Museum, Cairo JdE 30960, CG 28102
Bibliography: Gaston Maspéro, *Guide to the Cairo Museum* (Cairo, 1908), p. 8, no. 25; Pierre Lacau, *Sarcophages antérieurs au Nouvel Empire*, Catalogue Général des Antiquités Égyptiennes du Musée du Caire, nos. 28087–28126 (Cairo, 1906), p. 80, pl. 14; Jean-Philippe Lauer, "Fouilles du Service des Antiquités à Saqqarah (secteur nord) (novembre 1932–mai 1933)," *ASAE* 33 (1933): pp. 165–66; idem, *Histoire monumentale des pyramides d'Égypte* (Cairo, 1962), pp. 88–89; Anna Maria Donadoni Roveri, *I sarcofagi egizi dalle origini alla fine dell'Antico Regno* (Rome, 1969), p. 110, no. B6

The shape of alabaster sarcophagus A is identical with that of sarcophagus B. The box is rectangular and the lid is curved with rectangular ends. Both sarcophagi are undecorated and uninscribed. Two pairs of holes for ropes are drilled into the small ends of the lid and connected at the bottom by a horizontal hole, resulting in a U-shaped tube. The lid is joined to the box with a simple, Z-shaped groove. Sarcophagus A probably contained the four vessels.

Dimensions: L. 1.82 m; W. 0.785 m; H. 0.73 m

Sarcophagus B

Egyptian Museum, Cairo JdE 30961, CG 28103
Bibliography: Pierre Lacau, *Sarcophages antérieurs au Nouvel Empire*, Catalogue Général des Antiquités Égyptiennes du Musée du Caire, nos. 28087–28126 (Cairo, 1906), p. 80; Anna Maria Donadoni Roveri, *I sarcofagi egizi dalle origini alla fine dell'Antico Regno* (Rome, 1969), p. 111, no. B7

For the description, see above under sarcophagus A.

Dimensions: L. 1.82 m; W. 0.785 m; H. 0.73 m

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[358] See Günther Dreyer, "Der erste König der 3. Dynastie," in *Stationen: Beiträge zur Kulturgeschichte Ägyptens* (Mainz, 1998), p. 34. A small limestone relief of Horus *Qꜣj-ḥḏt* in the Louvre (E 25 982) is said to have come from Dahshur, see Christiane Ziegler, *Catalogue des stèles, peintures et reliefs égyptiens de l'Ancien Empire et de la Première Période Intermédiaire* (Paris, 1990), pp. 54–57; idem, in *Egyptian Art in the Age of the Pyramids*, exh. cat. (New York, 1999), p. 11, no. 9.

PART THREE

BUILDING METHODS

The excavation of a pyramid complex always provides a welcome opportunity to analyze the architectural features and, foremost, the technical aspects of pyramid building. Such examinations have been carried out by the author and his colleagues at three other Twelfth Dynasty pyramids, namely, those of Amenemhat I and Senwosret I at Lisht and Amenemhat III at Dahshur,[359] the latter being the immediate successor of the pyramid of Senwosret III. Comparison of the techniques used at the four pyramid complexes reveals that immense technological advancements had taken place during the roughly two-hundred-year period between 1990 and 1790 B.C.E.

Planning and Preparation

The spatial organization of the Senwosret III complex is based on a grid, as is usual in Egyptian monuments of the Old[360] and Middle Kingdoms.[361] From the available data, it is not possible to recognize the overall system of proportions that was used here.[362] The dimensions of the pyramid temple suggest that for this structure, a 7 x 7 cubit grid was applied (p. 49).

The dimensions obtained from our survey (fig. 36) show that the original complex was not quite square, but slightly wider than it was deep (365 cubits east-west and 381 cubits north-south). The inner enclosure, however, was deeper than it was wide, measuring 273 cubits east-west and 266 cubits north-south; the greater depth of the east inner court was necessary to accommodate the pyramid temple. In addition, the inner enclosure wall was not centered within the outer wall but shifted to the north in order to leave adequate space for the large subsidiary pyramids (7–9) in the south court. One can therefore visualize the original complex as a configuration of three structures contained within or enveloping one another. The square pyramid, which was the heart of the complex, stood toward the west side of an east-west oriented inner rectangle, which was in turn placed toward the north side of a larger north-south oriented outer rectangle.

The 50° inclination of the pyramid is quite shallow compared with those of most Old Kingdom pyramids, which have inclinations of 52°–54°. The closest parallel to Senwosret III is the pyramid of Sahure, which is 50°45'. Among pyramids of the Twelfth Dynasty, the inclination of the pyramid of Senwosret III is positioned exactly between the older pyramids of Senwosret I and Senwosret II, which are shallower (49°25' and 49°24' respectively), and the two steeper pyramids of Amenemhat III (54–56° at Dahshur and perhaps 52° at Hawara), revealing that pyramid slopes became steeper during the Twelfth Dynasty. It is questionable whether the difference between 50° and 54° would have been noticeable to the

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[359] Arnold, *Amenemhet III*, pp. 73–92; Arnold, *Senwosret I*, vol. 3, pp. 96–101. For a detailed study of the building methods used for funerary apartments in Old Kingdom pyramids, see Labrousse, *L'architecture*.

[360] See Hadyn R. Butler, *Egyptian Pyramid Geometry: Architectural and Mathematical Patterning in Dynasty IV Egyptian Pyramid Complexes* (Mississauga, Ontario, 1998).

[361] Arnold, *Amenemhet III*, pp. 88–90; idem, *Senwosret I*, vol. 3, pp. 100–101.

[362] The reconstruction of the proportion system of the complex of Senwosret III in Arnold, *Amenemhet III* (pp. 89–90, fig. 44) was based on De Morgan's flawed survey and can no longer be used.

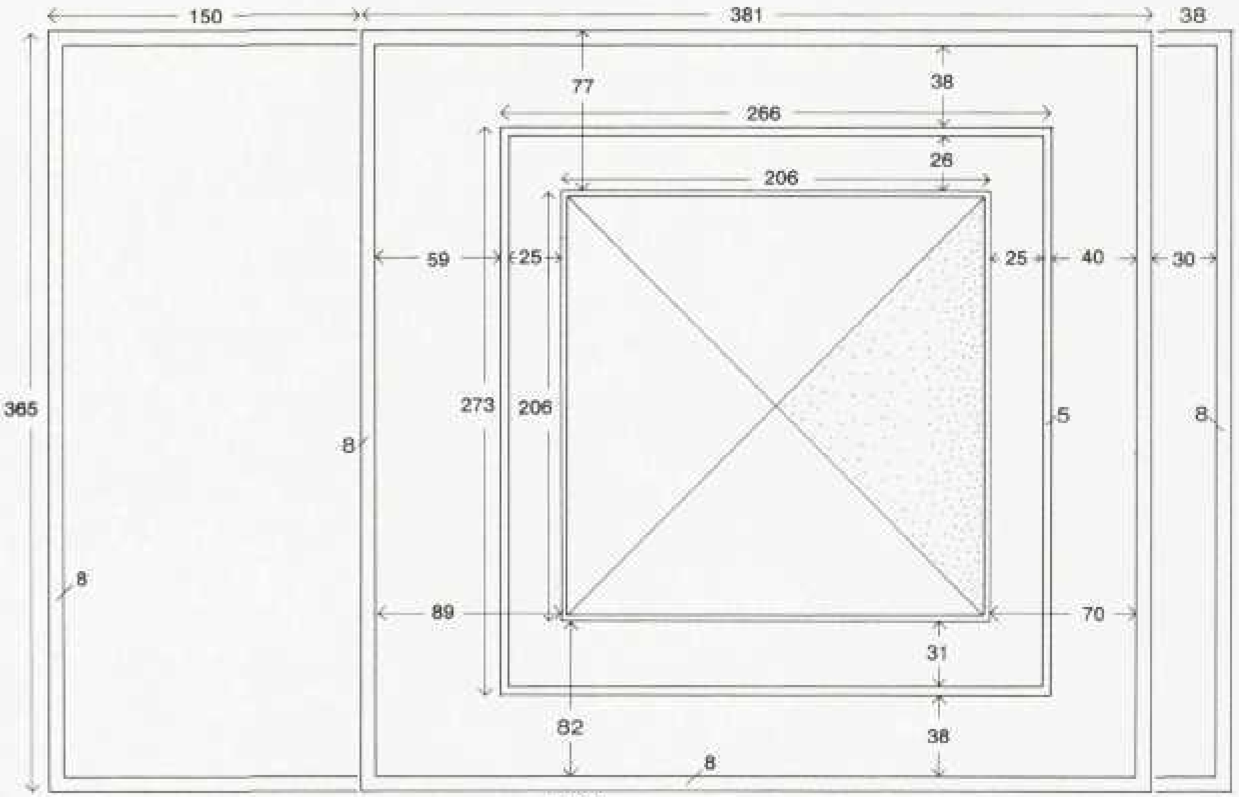

Fig. 36. Measuring system (in cubits) of the pyramid complex of Senwosret III. Drawing D.A.

untrained observer, who would have viewed only one pyramid at a time, and rarely from the center of a side. Most of the subsidiary pyramids of the Senwosret III complex have the traditional inclination of about 63°, a slope unchanged since the Sixth Dynasty.[363] This angle suggests that the builders intended the subsidiary pyramids to have base lengths equal to their height, or a triangle with the proportion between height and half base of 2:1 (pp. 58–59).

Unfortunately, the small number of control notes, ostraca, etc., prevents us from learning about the organization of the project's work force. The number of cutting and laying masons employed to construct a Middle Kingdom complex might not have exceeded 150 men.[364] Records from large-scale medieval construction projects suggest similar figures: the city wall of Avila, Spain, more than 1½ miles long and with eighty-six towers, was erected from 1088–91 by 22 Burgundian stonemasons and 12 "masters of geometry," who probably had at their disposal additional, unskilled local laborers.[365] Between February and June 1253, at the construction site of Westminster Abbey, there were a total of 326–428 workers, including the members of the craft guilds.[366] In 1344, 170–210 cutting and laying masons were employed to build Windsor Castle.[367]

Foundations

The pyramids of Amenemhat I and Senwosret I at Lisht were built in the traditional manner on solid foundation platforms of huge limestone blocks, which protruded from all four sides of the actual pyramid and continued into the foundation of the surrounding inner pyramid court. Nothing can be said about the foundation of the pyramid of Amenemhat II. At the pyramid of Senwosret II a seemingly different approach was used. A natural *gebel* core was intended to support the brick core of the pyramid, which was surrounded by a shallow trench 4.50 m wide. Several courses of bricks (subfoundation) leveled the bottom of the trench and supported the limestone foundation blocks for the pyramid casing. Brick subfoundations are typical for the pyramid complex of Senwosret III and the surrounding mastabas. Given the pyramid's considerable dimensions and weight, its foundations were quite modest, but no evidence for the sagging or cracking of the subfoundation or foundation blocks has been distinguished.

In the so-called palace of the south temple, we observed that the brick subfoundation was carefully raised or lowered to accommodate limestone foundation blocks of different thicknesses, apparently in order to level the surface of these blocks. This method avoided the need to cut down the upper surfaces of the blocks, resulting in a more economical use of building materials.

Underground Constructions

The underground apartments of the pyramids of Amenemhat I and Senwosret I were carved out of the bedrock through underground tunnels.[368] Access to the area was provided by a huge ramp, or entrance cut, sloping down from the north toward the center of the pyramid. The entrance cut certainly had steps for the workmen and a smooth central slope for sliding down heavy blocks. After about 30 m, the open ramp became an underground tunnel, and the narrow sloping entrance passage was built within this ramp. The mummy and burial equipment were brought in through this passage, which was then blocked with granite plugs.

This tunneling method was relatively simple to carry out, but one can theorize that because of the poor quality of the *gebel*, it restricted the size of the burial chambers. In order to increase the size of the chambers, high, protective stone roofs would therefore be needed to insulate the rooms from the weight and pressure of the ground and the pyramid above. The underground chambers of the pyramid of Amenemhat II at Dahshur were therefore sunk into a huge open trench, cut before the construction of the pyramid.[369] However, the narrow sloping entrance passage was retained.

The solid limestone bedrock at Lahun enabled the builders of the pyramid of Senwosret II to return to a variation of the tunnel construction method.[370] Access to the tomb was provided by a huge construction shaft built in two steps; the burial was lowered through another narrow shaft within the inner pyramid court. For the first time, the underground passages were designed to allow people to walk upright. This spaciousness is found in the underground rooms of succeeding pyramids, where the royal underground apartments no longer consisted of narrow, crowded burial chambers, but were provided with wide, high corridors and rooms, certainly reflecting changes in religious belief.

At the pyramids of Senwosret III and Amenemhat III at Dahshur, the open-trench method was used, because the large chambers in the soft *gebel* had to be covered by heavy stone roofs. As at the preceding pyramid of Senwosret II at Lahun, a second entrance shaft was prepared for the burial.

The pyramid of Amenemhat III at Dahshur had an entrance staircase, a type of access that prevailed during the latter part of the Middle Kingdom. The roof construction of the crypt of Amenemhat III at Dahshur could not be properly studied, and it had been assumed that it consisted only of a simple gable roof.[371] However, exploration of the roof of Senwosret III's burial chambers (pp. 38–39), suggests instead that a more elaborate construction method was also used under the later pyramid. Study of the roof construction of the crypt of Senwosret III also confirmed a previously published theory on the method of positioning huge roof blocks.

> The first blocks, which were along the south side, had to be pushed against the short sides of the chambers in the east and west, with the following ones added in the center. A combination of levers and ropes anchored at the

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[363] Borchardt, *Sahu-re*, p. 28; Lauer, *Téti*, p. 37; Labrousse, *Ounas*, p. 55; Audran Labrousse, *Regards sur une pyramide* (Paris, 1991), p. 112; Peter Jánosi, *Die Pyramidenanlagen der Königinnen* (Vienna, 1996), p. 103.

[364] Arnold, *Amenemhet III*, pp. 90–92.

[365] Bernard Bevan, *History of Spanish Architecture* (London, 1938), pp. 116–17.

[366] Alain Erlande-Brandenburg, *Notre-Dame de Paris* (New York, 1998), p. 51.

[367] L. F. Salzman, *Building in England Down to 1540: A Documentary History* (1952; reprint, Oxford, 1997), p. 36.

[368] Groundwater fills the entire underground apartments of Senwosret I and parts of the tomb of Amenemhat I, see Arnold, *Senwosret I*, vol. 1, pp. 69–71, pls. 89–90.

[369] De Morgan, *Dahchour* II, pp. 32–36.

[370] Brunton, *Lahun* I, pl. 21.

[371] Arnold, *Amenemhet III*, pp. 32, 86.

> upper edge of the shaft would have been used to lift the blocks into their half-upright, half-sloping position until they could be supported by temporary masonry from below. In the same way, the row of blocks along the north side would have to be added, until the last block—the one in the axis of the entrance cut—could be fitted in.[372]

The space between the lower granite roof and the upper limestone roof over the crypt is still filled with this "temporary masonry," a solid mass of carefully laid bricks.[373] In the case of the tomb of Senwosret III, the construction ramp seems to have descended from the south toward the south side of the crypt. The roof blocks on the north side would have been lowered first. After the south blocks were added, the supporting brick masonry beneath could not be easily removed, and it was therefore left in position, despite its considerable weight (pls. 14, 16–18, 27b–d).[374]

The unstable desert surface at Dahshur apparently made it difficult to dig shafts and forced the workers to shore up the particularly precarious upper sections with brick walls, which still remained in all the shafts we examined. Underground passages and chambers were easily dug into the soft *gebel* with pointed chisels or hoes, and their marks are still visible everywhere. The miners often ran into difficulties. Large nodules of hard stone, which the miners could not cut back or split, had to be either removed in their entirety or tunneled around. In either case, the walls or ceilings of the passages were destabilized and had to be repaired with brickwork.

The crypts of the king and the royal women offer numerous interesting examples of Middle Kingdom stone roof construction. For simple flat stone ceilings, builders employed the unique technique of reducing the weight of the upright beams by hollowing out their top surfaces (pp. 57, 60; fig. 19). A higher level of technical sophistication is found in the shallow vaults created by hollowing out the undersides of originally flat ceiling beams (in French *intrados curviligne*).[375] Ceilings of this type cover the entrance passage, antechamber, and serdab of the king's tomb (pls. 11b, 12c–d, 16–18, 21c) and the entrance passage and antechamber of the tomb of Queen Weret II (pls. 57–59, 62a–c). Since an example from the temple of Mentuhotep Nebhepetre at Deir el-Bahari is questionable,[376] the vaults under Senwosret III's pyramid seem to represent the beginning of a method of ceiling construction that became quite common in the New Kingdom.[377]

Vaults created by hollowing out the undersides of single beams were rightly considered to be structurally insufficient for spanning wider chambers. Therefore, burial chambers of the king, Queen Weret II, and pyramids 1–4 are covered with vaults that were created by hollowing out the undersides of saddle roofs.[378] The principle behind this roof system was not invented in the Twelfth Dynasty, but goes back to the pyramids of Mycerinus and Shepseskaf.[379] However, the Twelfth Dynasty roof beams no longer have straight central joints, but superior V-shaped ones, the direction of which alternates from one pair to the next (pl. 82b).

In addition, the tops of the blocks occasionally end with interlocking joints (pls. 75c, 89). This more complex method also appears in the crypts under queens' pyramids 1–4, in the late Twelfth Dynasty mastaba field north of the pyramid of Senwosret III,[380] and in the pyramid of Amenemhat III at Dahshur.[381] Since this technique was not used for the crypts of Senwosret III and Queen Weret II, one may assume that it was invented immediately after their construction, indicating an interesting development in engineering methods. The appearance of V-shaped and interlocking joints in vaults may therefore be used as a dating criterion.

A triple roof construction consisting of hard-stone, limestone, and brick sections appears for the first time in the pyramid of Senwosret III, and was repeated in the pyramid of Amenemhat III at Hawara and in an anonymous Thirteenth Dynasty pyramid at South Saqqara.[382] The roof construction in the pyramid of Amenemhat III at Dahshur cannot be examined, but the assumption that the chamber was built in an open trench[383] would lead to the conclusion that it had to be protected by a triple roof. This theory is supported by the observation that the crypt of Amenemhat III suffered less damage than the other rooms inside the pyramid.

Construction of the King's Pyramid

Since the foot of the pyramid's south side is still surrounded by sand and limestone debris, we have not been able to discover remains of building ramps or other construction installations. We assume, however, that the main approach to the construction site was not via the relatively steep slope followed by the causeway to the southeast, but along the gently rising plain in the south. This approach could be easily reached from the area northwest of the presumed valley temple of Snefru's north pyramid. Unfortunately, the remains of any roads were probably destroyed during the construction of the industrial installations of the Gulf Petrol Company. Confirmation of the location of the ancient main access road can be seen in the burial of transport sledges and wood boats along the south side of the later enclosure wall of Senwosret III (pp. 106–7).[384]

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[372] Arnold, *Building*, pp. 120–21, fig. 4.17.

[373] The crypt of Amenemhat II had a permanent stone construction in the space between the upper and the lower roofs. This device unintentionally transferred the thrust of the gable roof directly onto the chamber roof (Arnold, *Building*, pp. 194–95, fig. 4.132).

[374] One wonders whether the bricks cover a stone construction similar to that in the roof of the Amenemhat II pyramid, see above n. 373.

[375] El-Naggar, *Les voûtes*, vol. 1, p. 355.

[376] Dieter Arnold, *Der Tempel des Königs Mentuhotep von Deir el-Bahari*, vol. 1, *Architektur und Deutung* (Mainz, 1974), fig. 26, pl. 19c–d; El-Naggar, *Les voûtes*, vol. 1, p. 355, vol. 2, fig. 57.

[377] El-Naggar, *Les voûtes*, vol. 1, p. 355, vol. 2, figs. 65–71a.

[378] Saddle roofs consist of pairs of roof beams that press against each other at the top, thus directing the downward thrust into the side walls, see Arnold, *Building*, pp. 195–98, figs. 4.134–.137; El-Naggar, *Les voûtes*, vol. 1, pp. 118–19, 148, vol. 2, fig. 135.

[379] El-Naggar, *Les voûtes*, vol. 2, figs. 104–6, 107b.

[380] De Morgan, *Dahchour* I, figs. 19, 63.

[381] Arnold, *Amenemhet III*, figs. 6–8, pls. 46–47, 50. The example from the "French tomb" near the "grand mastaba du nord" at Lisht South may date to the same period, see Arnold, *Building*, fig. 4.138b. The publication of the architecture of the tomb (Dieter Arnold, *Mastaba Architecture of the Twelfth Dynasty at Lisht and Dahshur*) is in preparation.

[382] El-Naggar, *Les voûtes*, vol. 2, pls. 142, 146.

[383] Arnold, *Amenemhet III*, p. 31.

[384] The south side of a pyramid is also the traditional place for the burial of solar barks and other ships intended for the king's use in the afterlife. Such a ship should have been buried in the brick chamber at the southwest corner of the Senwosret III complex. In the same area, a fleet was buried that according to tradition should have participated in the king's funeral procession, which would have used the access route to the south of the complex.

Stone Masonry

Compared with the dimensions of the Fourth Dynasty pyramids, those of the Twelfth Dynasty were quite modest, and the technical problems were easier to solve. Twelfth Dynasty complexes nevertheless required the production of roughly 100,000 limestone casing blocks and other architectural elements.[385] Since no local limestone was available at Dahshur, all blocks had to be shipped to the site from quarries on the east bank. The high quality of the limestone used for the pyramid of Senwosret III made it extremely attractive to stone robbers and certainly contributed to its total destruction.

The stonework of the pyramid casing must have been executed to the highest standards. The blocks and fragments recovered have perfectly smoothed surfaces, sharply cut edges, and a precisely measured inclination of 50°. Numerous preserved cramp sockets suggest that a great number, if not all, of the casing blocks were connected with wood cramps. Many repairs were made to the surfaces of the casing blocks, as is attested by numerous patch stones found in the debris. Meticulous stonework is also confirmed by pieces of the precisely cut and smoothed diorite pyramidion (pp. 31–32) and of course by the granite and limestone wall blocks of the funerary apartments.

In the pyramid complex of Senwosret III all stone masonry was laid on two courses of limestone blocks, which were in turn supported by three to four courses of brickwork. This sequence of foundations was used for the pyramid casing, the pyramid temple, the stone inner enclosure wall, the south temple, and even for the casing of the queens' pyramids and private mastabas. Such careful and consistent foundation construction has no parallels in the pyramid complexes of the earlier Twelfth Dynasty, and it seems to be a peculiarity of the time of Senwosret III. The presence of such foundations can be used as a dating criterion.

Another technical detail was developed during the construction period of the pyramid complex of Senwosret III. The fillet stones that seal the roof slabs of the pyramid temple against rainwater have plain, mushroom-shaped sections (pp. 52–53; pl. 144A). In the slightly later south temple, the fillet stones have a much more sophisticated arrangement of tenons, which could have made the roof absolutely waterproof (pp. 102–3; pl. 144B–C). However, the implementation of this system was so complicated that later Egyptian builders refrained from using it.

Brickwork

During the Middle Kingdom, the ancient traditions of brick building continued with a moderate degree of technical advancement (see below). In the royal cult complexes, the most prominent hallmark was the substitution of brickwork for stone masonry, as can be seen by comparing the funerary complexes of Senwosret I and Senwosret III. The creation of a pyramid with a brick core is often interpreted as a sign of economic recession or a need to take cost-saving measures, and it is true that none of the royal cult complexes of the Twelfth Dynasty is as monumental as those of the Old Kingdom. But it should be understood that building exclusively in stone was exceptional and was actually a religiously motivated obligation. Builders of the Middle Kingdom apparently did not labor under this imperative, and instead took a more practical and realistic approach. Also to be considered is the possibility that the predominance of brickwork in pyramid cores of the later Twelfth Dynasty was symbolic. For example, burials and sarcophagi of that period attest to the requirement of being surrounded by soil, perhaps in order to be enveloped by a "real" earth mound.[386]

At the beginning of the Twelfth Dynasty, the interior construction of stone pyramid cores presented the still inexperienced builders with technical problems, and their increasing mastery can be traced from one monument to the next. The pyramid of Senwosret II at Lahun was the first Middle Kingdom pyramid that had a brick core, which in this case was placed over an inner core of natural rock. For the core masonry of all the succeeding pyramids, brick was used exclusively. The steps of this development can be defined as follows.

1. Amenemhat I:[387] Large, irregular stone blocks.
2. Senwosret I and Amenemhat II:[388] A combination of skeleton walls composed of huge blocks with compartments filled with smaller stones.
3. Senwosret II:[389] A combination of a natural rock core, skeleton walls composed of huge blocks running through the diagonals of the pyramid, and brick-filled compartments.
4. Senwosret III, Amenemhat III at Dahshur and Hawara and the pyramids of the Thirteenth Dynasty:[390] Solid brick cores.

Because of the enormous mass of brickwork,[391] and probably following older traditions, the pyramid's brick courses were laid in sand, thus avoiding the cracking and sagging that could have occurred as wet mortar dried. Also following ancient traditions, the bricklayers increased the stability of the brickwork by laying the bricks as headers on all four faces of the pyramid. At the pyramid corners, diagonal lines formed the junctures between the four faces, as can be seen on plates 8–9.[392] The bricks used in Twelfth Dynasty pyramid complexes seem to consist of relatively standard medium and large formats.

	Medium size (in cm)	*Large size (in cm)*
Senwosret I[393]	10–13 x 16–17 x 32–34	14–18 x 23–25 x 45
Senwosret II[394]	?	14 x 22 x 44
Senwosret III	13 x 19 x 37–38	12–15 x 21–22 x 42–43
Amenemhat III (Dahshur)[395]	11–12 x 19–21 x 36–39	13–14.4 x 19.5–22 x 39–45
Amenemhat III (Hawara)[396]	?	12 x 22 x 44

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[385] As opposed to the pyramid of Khufu, which is composed of approximately 2.5 million stones!

[386] This strange custom was observed in the burial chamber of Nebit II (husband of Sitwerut, north mastaba 31), where the limestone sarcophagus within a beautiful limestone crypt was surrounded by earth.

[387] Gautier, *Licht*, pp. 88–94; A. C. Mace, "Egyptian Expedition III: The Pyramid of Amenemhat," *BMMA* 3 (1908): p. 185, fig. 3.

[388] Arnold, *Senwosret I*, vol. 1, pp. 64–66 (Senwosret I); De Morgan, *Dahchour* II, pp. 29–31 (Amenemhat II).

[389] Petrie, *Lahun* II, pp. 2–3.

[390] Arnold, *Amenemhet III*, pp. 10–11 (Amenemhat III at Dahshur); *LD*, vol. 2, pp. 22–28; W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* (London, 1890), pp. 12–14 (Amenemhat III at Hawara).

[391] A. J. Spencer (*Brick Architecture in Ancient Egypt* [Warminster, 1979], p. 37) estimated 24.5 million bricks.

[392] Ibid., pp. 128–29.

[393] Arnold, *Senwosret I*, vol. 1, pp. 24, 29, 31.

[394] *LD*, vol. 2, p. 8.

[395] Arnold, *Amenemhet III*, pp. 10, 58, 82 n. 114.

[396] *LD*, vol. 2, pp. 24, 27.

Bricks were used not only for the pyramid of Senwosret III but also for enclosure walls and the causeway. These walls were built on massive foundation platforms that consisted of several courses of bricks and protruded from the foot of the wall on both sides. The walls were protected from the elements by layers of whitewashed *muna*. Since *muna* coatings rapidly deteriorate, and since only one campaign of repairs was noticeable (p. 20), the enclosure walls could not have lasted very long.[397]

The pyramid complex of Senwosret III also produced interesting examples of brick arches and vaults. The discharging arch above the entrance of the causeway passage (pp. 94–95; pls. 128, 130, 131c–d, 132a) consisted of seven rings of brick 1.65 m thick, which had to harmonize not only with the batter of the wall but also with the bedding joints of the causeway. Another example, unfortunately now destroyed, was the 18.75 m long brick vault covering the large boat pit south of the pyramid complex,[398] which consisted of five rings 1.30 m thick that had a span of 4 m (p. 106; pl. 151A). An enormous discharging brick vault also protected the stone roof of the king's burial chamber (pp. 38–39; fig. 11; pls. 16–18). Its size cannot be measured, but it may be 4.5 m thick. These huge vaults suggest the development and wide diffusion of brick construction during the Twelfth Dynasty.[399]

[397] Provisions against rainwater on temple roofs show that in the Twelfth Dynasty rain fell as frequently as today. According to our experience, a modern or an exposed ancient *muna* coating deteriorates after three to five years, and exposed modern unbaked bricks erode away after a few more years. The higher quality of ancient bricks and the bulky mass of ancient walls may have made them more durable.

[398] De Morgan, *Dahchour* I, p. 82, figs. 201–2; El-Naggar, *Les voûtes*, vol. 1, p. 148, vol. 2, fig. 173.

[399] See A. J. Spencer, *Brick Architecture in Ancient Egypt* (Warminster, 1979), pp. 37–43; El-Naggar, *Les voûtes*, vol. 2, figs. 270–73.

PART FOUR

ANALYSIS AND CONCLUSIONS

Artistic Aspects

The study of the pyramid complex of Senwosret III demands a consideration of the aesthetic aspects of this monument that go beyond the level of its real and symbolic function. When the pyramid complex of Senwosret III was completed, the large, impressive monument must have been a spectacular sight, dazzling the visitor with its white, freshly carved limestone casing and its white enclosure walls. The simple geometrical forms and whiteness must have given the complex an otherworldly, immaterial aspect[400] well suited to the dwelling place of the *akhu*, or "souls of light," as the deceased were termed.[401]

The main feature of the complex was the arrangement of a dominant pyramid within a double enclosure, heightening the viewer's perception of it as a freestanding monument.[402] The impact of the central pyramid was also augmented by the two rows of smaller subsidiary pyramids, four in the north and three in the south. Their steeper angles and tight spacing must have enhanced the broad central mass of the main pyramid. The space of the inner court was so compressed that the impression of the towering pyramid must have been, as in all pyramid enclosures, overwhelming. After the addition of the south court, a kind of equilibrium may have been achieved between the low rectangular structures and the pyramid's rising mass.

Seen from a distance, the rectangular outer enclosure wall would have appeared to be an enormous, elevated platform with the pyramid rising above it. The surface of the wall was articulated by the vertical arrangement of protrusions and recesses, producing a strong shadow pattern and providing a vertical counterbalance to the broad horizontal expanse of the wall. At the same time, the four corners were defined by larger bastions and, depending on the position of the sun, further articulated by the contrast between illuminated and shadowed sides.

A similar limestone inner enclosure wall surrounded the foot of the pyramid at a distance of only 14–18 m, creating an interesting spatial relationship between the large pyramid and the narrow, enveloping court. The gigantic dimensions of the pyramid dwarfed the court and its low enclosure. The enclosure wall's low height and relatively small projections and recesses combined with its enormous length must have created an extraordinary visual effect, emphasizing the symbolic value of the wall as opposed to a defensive function. At the same time, the walls defined a circulation path around the pyramid.

Nearly all Middle Kingdom pyramids were surrounded by paneled walls. Only the enclosure wall of the pyramid of Amenemhat I was not articulated with projections and recesses, while that of Senwosret I was covered with panels decorated with the Horus name of the king and fecundity figures.[403] One would expect that the pyramid of Amenemhat III at Hawara also had a paneled enclosure wall.

As was mentioned above, the modest heights of these walls show that they did not have a defensive aspect, but rather a purely symbolic and aesthetic function. After their disappearance during the Fourth Dynasty, structures with paneled walls seem to have regained great importance in the Twelfth Dynasty, when they were presumably seen as symbols of archaic sacred enclosures (probably the so-called ancient fortresses of the gods).[404] Paneled decoration surrounded not only pyramids but also other potent objects, such as the bases of sarcophagi or sanctuaries that had the form of the Lower Egyptian *per-nu*-shrine,[405] with curved roofs and high, vertical side walls.[406] The inner and the outer enclosure walls of Senwosret III had the same paneling, indicating an emphasis here on the symbol as part of the archaizing tendencies found throughout the complex.[407] One could even include the paneled socle of the king's granite sarcophagus in this pattern, since it symbolically functions as the innermost enclosure wall (pls. 19a, 20a, 28–29).

The causeway to the enclosure was impressive, but access to the funerary complex was not a simple matter. The inclination of the route leading to the site does not seem to have been thoughtfully calculated, and considerable technical difficulties were encountered at the juncture of the causeway and the pyramid complex (pp. 95–96). Because of the terrain, the causeway had to approach the enclosure wall at an oblique angle; it joined the complex at the southeast corner rather than the center, creating a stunning vista from the top of the causeway. Yet since the main approach, the stone center lane of the causeway, was completely enclosed, only those approaching the pyramid complex by means of the causeway's north lane would have experienced the impact.

However, one has to concede that the architects apparently accepted an aesthetic imperfection when they connected the causeway to the pyramid complex. The causeway joined a historically incompatible building element, namely, the paneled outer enclosure wall, but as far as can be determined, there was no attempt to hide the contrasting forms.

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[400] The dominance of the color white makes one think of the buildings of the contemporary American architect Richard Meier, for whom "White is the light, the medium of understanding and transformative power. White is the ephemeral emblem of perpetuated movement. The white is always present but never the same." (Philip Jodidio, *Richard Meier* [Cologne, 1995], p. 80).

[401] Eberhard Otto, "Ach," *LÄ*, vol. 1, pp. 49–52.

[402] Contradicting the general understanding that Egyptian art and architecture was not meant to be viewed, we know that "royal master builders" not only felt pride in their creations, but also must have expected royal or priestly "visitors" to judge their proficiency.

[403] Arnold, *Senwosret I*, vol. 1, pp. 58–63, pls. 30–36.

[404] Dieter Arnold, "Royal Cult Complexes of the Old and Middle Kingdoms," in *Temples of Ancient Egypt*, ed. Byron E. Shafer (Ithaca, New York, 1997), pp. 32–38.

[405] See Ricke, *BemerkungenAR* I, pp. 36–38.

[406] Paneled decoration along the base of a structure is quite common in Egyptian architecture, see for example the drawings by Henri Chevrier in Pierre Lacau and Henri Chevrier, *Une chapelle de Sésostris Ier à Karnak* (Cairo, 1956), p. 21, fig. 7; and in idem, *Une chapelle d'Hatshepsout à Karnak* (Cairo, 1977), p. 34, fig. 5. Examples of Twelfth Dynasty paneled mastaba tombs include those of Senwosretankh at Lisht and of Siesi (Sa-Iset) and Khnumhotep at Dahshur (Dieter Arnold, *Mastaba Architecture of the Twelfth Dynasty at Lisht and Dahshur*, in preparation).

[407] The pyramid of Amenemhat III at Dahshur seems to have had three enclosures: a) an outer brick wall that may not have been paneled, b) a paneled inner brick wall, and perhaps c) a paneled stone wall (Arnold, *Amenemhet III*, pp. 65–71, pls. 29–32a, 62–64). See here also p. 24.

The complex circulation routes continued inside the southeast court. A second stone passage led from the south temple to the north, in the direction of the pyramid temple. From our modern understanding of building approaches, it is difficult to imagine that a person who traveled from the valley temple through the center lane of the causeway and on to the pyramid temple would have been allowed only a brief glance at the pyramid from the court of the south temple. After exiting the passage, that person would have stood in the inner pyramid court and suddenly been confronted by the dramatic sight of the pyramid itself only about 14–18 m away.

The spatial organization of the pyramid complex of Senwosret III did not facilitate circulation between individual structures, which were not only surrounded by the outer enclosure wall but were also separated by interior walls.[408] The separate elements and courts were arranged in an additive, gridlike pattern, without clear routes between them. This kind of separation allowed each structure to fulfill individual functional and symbolic purposes. In the original plan of the pyramid complex, access to the three subsidiary pyramids in the south court would have been easy and direct through the gate at the south end of the east wall. After the construction of the passage connecting the inner court to the south temple, this route would have been blocked. Access to the south pyramids would have been possible only by walking completely around the pyramid's east, north, and south sides, unless the passage had side doors in the east and west walls.

Entering the interior of the pyramid temple and the south temple, a visitor would have been confronted with a conspicuous feature of Egyptian architecture, namely, the contrast between abstract, geometric external shapes, articulated by white color on the outside, and floral elements animated by lively coloring in the interior. The most striking examples are the dazzling colors of the papyrus-bundle columns (frontispiece) that stood in front of the exquisitely decorated walls of the porticoes and hypostyle halls.

The chambers under the king's pyramid still provide a striking spatial experience. The number of rooms in earlier Twelfth Dynasty pyramids was probably kept as small as possible (p. 110), and the entrance passages were conceived not as paths but instead reverted to "solid bedrock" by masonry blocking. Only with tomb 621 and the pyramid of Senwosret II at Lahun does the development of true interior rooms begin. They continue with the tombs of Senwosret III at Dahshur and Abydos and Amenemhat III at Dahshur.[409]

In the pyramid of Senwosret III, an entrance corridor and a sequence of chambers were built as large navigable spaces, where movement was not constrained by masonry. The rooms created were not hollow voids but consciously arranged formal elements. The path to the crypt, dictated by the location of the entrance shaft in the west, is U-shaped and leads the visitor through a sequence of first passage, turning chamber, second passage, antechamber, and crypt. The width of the path was determined by its purpose, which was to provide access for the royal mummy and the funerary equipment. Because of technical considerations the passages were kept as narrow as possible. The two passages have differently shaped ceilings: the first one is slightly vaulted, while the second one is flat. As in the pyramid of Senwosret II, the antechamber played an important cultic role, which is indicated by its spaciousness and high-vaulted ceiling. The building of such huge antechambers ceased after the reign of Senwosret III. The dimensions of the antechambers from Senwosret II to Senwosret III are as follows (in meters):

	Length	*Width*	*Height*
Senwosret II[410]	4.96–5.0	3.12–3.14	4.41
Lahun 621[411]	4.35	3.15	2.93
Senwosret III	3.69–3.71	2.34–2.35	3.60–3.61

The east-west oriented vault strongly emphasizes the 90° change in direction from north-south to east-west, reorienting the viewer toward the burial crypt itself. The dramatic increase in the height of the ceiling between the entrance passage and the antechamber prepares the "visitor" to enter the royal burial chamber. However, the visual and spatial continuity between antechamber and crypt are interrupted by a low doorframe. The crypt itself is a smaller version of the antechamber. The lowering of the ceiling in the crypt may indicate the limitations of ancient technology or a fixed canon of proportions that governed the dimensions of Twelfth Dynasty royal crypts, which are as follows (in meters):

	Length	*Width*	*Height*
Amenemhat II[412]	5.90	2.34	1.72
Senwosret II[413]	5.24–5.25	3.13	2.845
Lahun 621[414]	5.25	3.15	2.85
Senwosret III	5.24	2.70	3.18–3.19
Amenemhat III (Dahshur)[415]	5.25	2.77–2.78	2.74–2.77

Chronology of the Building Campaigns

The construction of the original pyramid complex of Senwosret III and its later additions probably covered a lengthy period, and may have included the following phases.

1. From a control note with the date "year 2, first month of summer, day 10,"[416] and a second one with the year 6 or 9 from the area of pyramid 8,[417] we can conclude that building activity at the pyramid complex of Senwosret III began early in the king's reign. The construction of the underground apartments of the king and Weret II and the erection of the pyramid, pyramid temple, and original enclosure walls would have lasted several years. One can estimate that twelve to fifteen years would be required to construct a medium-to-large-size pyramid complex, such as those of Senwosret I at Lisht, Amenemhat II and Amenemhat III at Dahshur, and certainly that of Senwosret III.

2. At present, there is no textual evidence indicating the date of the enlargement of the pyramid complex of Senwos-

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[408] Circulation may have been facilitated by openings and gates that have disappeared without a trace.

[409] Disregarding the fact that mortal visitors were not expected.

[410] Petrie, *Lahun* II, p. 6.

[411] Petrie, *Lahun* II, pp. 16–18, pl. 22.

[412] According to De Morgan, *Dahchour* II, pp. 34–36.

[413] Petrie, *Lahun* II, p. 6.

[414] Based on Petrie's plan in *Lahun* II, pl. 22, scaled at 1:150.

[415] Arnold, *Amenemhet III*, p. 31.

[416] Vyse, *Gizeh*, fig. 2 opposite p. 60; F. Arnold, *Control Notes*, p. 169, SIII1.

[417] Read by Felix Arnold.

ret III. But if one considers the position of the pyramid complex within the broader framework of the development of these monuments, one reaches an astonishing conclusion.

That the first (Dahshur) pyramid of the king's successor, Amenemhat III, represents a later stage of development is apparent in the layout of the funerary apartments. However, the overall plan of Amenemhat III's pyramid complex does not replicate or respond to the enlarged complex of Senwosret III, but instead seems to follow its original square plan. Thus, it seems likely that when the complex of Amenemhat III was planned, the complex of Senwosret III had not yet been enlarged. The proposed sequence of events suggests that an early and lengthy coregency existed between the two kings, resulting in the following building campaigns:[418]

a) Original pyramid complex of Senwosret III.
b) Dahshur pyramid complex of Amenemhat III.
c) South temple of Senwosret III.
d) Hawara pyramid complex of Amenemhat III.

The pyramid complex of Senwosret III therefore could have been enlarged only *after* that of Amenemhat III was planned, that is, after year one of Amenemhat III (corresponding to about year 19/20 of Senwosret III). Slight differences in building methods and in the style of the relief decoration confirm that several years must separate the south temple from the original pyramid complex of Senwosret III.

This hypothesis does not take into consideration another possibility. The huge temple now attached to the pyramid of Amenemhat III at Hawara, the so-called Labyrinth, could have been originally designed without a pyramid (fig. 37),[419] using the south temple of the complex of Senwosret III as a model. The king would have added a pyramid at Hawara only after the abandonment of his Dahshur pyramid. This second theory would result in the following sequence:

a) Original pyramid complex of Senwosret III.
b) South temple of Senwosret III.
c) Dahshur pyramid complex of Amenemhat III and temple at Hawara.
d) Abandonment of the Dahshur pyramid complex of Amenemhat III.
e) Hawara pyramid complex of Amenemhat III.

3. At an unknown time, subsidiary pyramids 1–4 and their underground burial apartments were added to the original pyramid complex. Whether or not this activity was connected with the north and south extensions of the pyramid complex remains unknown.

4. Construction work and interments continued in the subsidiary gallery of the north queens' tombs until later in the reign of Amenemhat III. A control note with the relatively late date of year 30 of an unnamed king was found on the top of a roof block in the entrance corridor to the queens' gallery.[420] The high regnal year can be associated only with Senwosret III or Amenemhat III. The note was written on a block that seems to have been removed and reinserted during alterations to the corridor (p. 56; pl. 68), which were apparently connected with the introduction of sarcophagi into the subsidiary queens' tombs. One might assign the graffito to year 30 of Senwosret III, which corresponds to Amenemhat III's year 10, if a coregency is accepted. Probably at that point, it became necessary to construct additional queens' tombs because the pyramid of Amenemhat III had developed structural problems and was at least temporarily deemed unusable.[421]

Royal women were buried in the subsidiary gallery throughout the reign of Amenemhat III.[422] However, the mutilated hieroglyphs considered typical for the end of the reign of Amenemhat III were absent from the sarcophagi inscribed for Princesses Menet and Senet-senebetes (pl. *119*) and from other material of Queen Mereret and Princess Sithathor.[423] Burial activity in the subsidiary queens' gallery would have ceased before the end of the reign of Amenemhat III and was not revived during the Thirteenth Dynasty.

The "Weret Problem"

The approximately nine-year reign of Senwosret II impairs our model of history based on regular sequences of generations of about thirty years and raises difficult chronological and genealogical problems.[424] The key figures for the chronology of the period are Senwosret II, Senwosret III, Queen Weret I, and Queen Weret II (see below), all of whom seem to have been born during the thirty-four-year reign of Amenemhat II. The reconstruction of their familial relationships remains incomplete, and the question as to whether Senwosret III was a son or perhaps a (younger) brother of Senwosret II is still unanswered.[425]

Any addition to the sparse historical data available for this period (the middle of the nineteenth century B.C.E.) is therefore of the greatest importance. New information has been gleaned from the excavation of the pyramids of both Queen Weret I (pyramid 8) and Queen Weret II (pyramid 9). The existence of two queens bearing not only the same name but also similar titles has caused confusion and initially hampered our ability to assign these monuments to a particular woman.[426] The discovery of more inscribed material (pp. 75, 81, 82, 146; pl. 164d) has finally shown that the owner of pyramid 9, Queen Weret II, was not the mother but the wife of King Senwosret III, and that the king's mother, Queen Weret I, owned pyramid 8.

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[418] The length of Senwosret III's reign is controversial. The author favors a reign of at least thirty years, including a coregency with Amenemhat III from year 19/20 on. For a variety of opinions on the subject, see William Kelly Simpson, "Studies in the Middle Kingdom: I–II," *JARCE* 2 (1963): p. 62; idem, "A Tomb Chapel Relief of the Reign of Amenemhat III and Some Observations on the Length of the Reign of Sesostris III," *CdE* 47 (1972): pp. 45–54; idem, "Sesostris III," *LA*, vol. 5, p. 903; Felix Arnold, "New Evidence for the Length of the Reign of Senwosret III?" *GM* 129 (1992): pp. 27–31; Frank J. Yurco, "Senwosret III Response," *KMT* 6 (Summer 1995): pp. 3–4; Josef W. Wegner, "The Nature and Chronology of the Senwosret III–Amenemhat III Regnal Succession: Some Considerations Based on New Evidence from the Mortuary Temple of Senwosret III at Abydos," *JNES* 55 (1996): pp. 262–63, 249–79; Claude Obsomer, *Sésostris Ier: Étude chronologique et historique du règne* (Brussels, 1995), pp. 147–55. See also William J. Murnane, *Ancient Egyptian Coregencies* (Chicago, 1977), pp. 9, 228; Delia, "Senwosret III," being revised for publication.

[419] Reliable archaeological studies of the temple and pyramid of Hawara and its possible building phases are sparse. However, the pyramid seems not to have been an integral part of the complex, but rather a separate unit, see W. M. Flinders Petrie, *Hawara, Biahmu, and Arsinoe* (London, 1889), pl. 25; idem, *Labyrinth*, fig. on p. 29. The possibility that the pyramid was built first and the complex added later is less likely.

[420] See Felix Arnold, "New Evidence for the Length of the Reign of Senwosret III?" *GM 129 (1992)*: pp. 27–31.

[421] The Dahshur pyramid of Amenemhat III was ultimately used for the burial of Queen Aat, another unnamed queen, Princess Sithathor, and at least two more persons whose sarcophagi have left foundation pits, see Arnold, *Amenemhet III*, pp. 93–94.

[422] Allen, "Queens' Ware," p. 40.

[423] De Morgan, *Dahchour* I, pp. 57–74. Since the jewelry of Mereret and Sithathor was not made specifically for their burials, the pieces do not have mutilated hieroglyphs.

[424] Mark C. Stone, "Reading the Highest Attested Regnal Year Date for Senwosret II: Stela Cairo JE 59485," *GM* 159 (1997): pp. 91–100. The photo on plate 1 shows that the reading of "year 8" remains controversial.

[425] Delia ("Senwosret III," p. 1) suggests that the inscription of "Senwosret III and his father Senwosret II" on a statue restored by Khaneferre Sebekhotep means that Senwosret II was the biological father and not just an ancestor of Senwosret III. However, Senwosret II's decision not to build his pyramid at Dahshur, as his predecessor Amenemhat II and his successors Senwosret III and Amenemhat III did, but far to the south, could perhaps point to the king's isolated position and some sort of dynastic disruption.

At least two more queens can be connected with Senwosret III. The name of Queen Sherit appears in Kahun Papyrus Berlin 10003 where two wood statues are described as representing a "royal consort, the associate of the white-crown-bearer, Sherit, alive." Based on her titles, Queen Sherit must have been of high rank, but since she is not called "mother of the king," she may not (or not yet at the time of the inscription) have been the main queen or the mother of Amenemhat III. Queen Sherit's tomb, certainly at Dahshur, has not yet been identified. One might consider that either pyramid 4 or possibly pyramid 1 belonged to her, since their owners remain uncertain.[427]

One has to consider, however, the slight possibility that Queen Sherit is identical with Queen Weret II and that the name Weret was given to the woman when she became older or had reached a certain rank. The presence of the letter among a small group of wire hieroglyphs found in the south tomb of pyramid 9 (Queen Weret II) supports this speculation.

The second queen was the owner of pyramid 2, whose name and titles "the king's wife, the associate of the white-crown-bearer, Nefret-henut" are inscribed on her sarcophagus. According to Fouquet, who examined the remains of her skeleton, the lady may have been forty to forty-five years old when she died.[428] We have no other information about this queen.

Functional Aspects

For a clearer understanding of the functional aspects of the pyramid complex of Senwosret III, we must start with some general considerations. Major rulers of Egypt regularly commissioned a series of monumental architectural installations that facilitated their "deification," the perpetuation of their power in the afterlife, and the commemoration of their names. Senwosret III, with his seemingly long and prosperous reign, followed this tradition. The excavations at Abydos undertaken by David Randall-MacIver, Arthur Weigall, and more recently Josef Wegner[429] have brought to light a temple at the edge of the desert, a cult site on a terrace, and a huge underground tomb, all for the cult of Senwosret III. The appearance of these Abydos installations seems to suggest that the reign of Senwosret III marked a special milestone in the transition from an archaic to a developing theology of the Osiris cult. The possibility that the king was even buried at Abydos may be seen as another sign of religious transformations during the reign of Senwosret III. This development is reflected in the plan of the king's pyramid complex at Dahshur, and particularly in the addition of the south temple.

A similar extension of a traditional pyramid complex with a temple in the south occurred in the early Fifth Dynasty complex of King Userkaf at Saqqara.[430] In both Userkaf's and Senwosret III's complexes, the cult facilities are separated into small chapel-like temples on the east side and much larger temple compounds to the south of the pyramid. Communication between the temples was provided by a gate at the east end of an east-west separation wall. In addition, the causeways entered the complexes at the south end of the east side. Pieces of colossal statues were found in the south temples of both complexes.[431] Similarities in the wall decoration may

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[426] The following monuments can be connected with Queen Weret I and Queen Weret II:

a) The lower part of a gray granite seated statue from the Heqaib shrine on Elephantine (Elephantine Museum, no. 1362), see Brunton, "Khnumt-Hezt," p. 100[4]; Perdu, "Khenemet-nefer-hedjet," pp. 75–76; Labib Habachi, *The Sanctuary of Heqaib* (Mainz, 1985), pp. 112–13, no. 101; Detlef Franke, *Das Heiligtum des Heqaib auf Elephantine* (Heidelberg, 1994), pp. 60–61.

b) A seated statue from Leontopolis depicting Senwosret III and two queens (British Museum, 163 [1145]). The left figure, which does not have a preserved name, is perhaps Weret I, see Perdu, "Khenemet-nefer-hedjet," pp. 73–74.

c) A seated statue from Leontopolis depicting Senwosret III and two queens (British Museum, 164 [1146]). The left figure represents Weret I, see Perdu, "Khenemet-nefer-hedjet," p. 74.

d) A statue from Medamud depicting Senwosret III and two queens (Egyptian Museum, Cairo JdE 66569). The right figure probably represents Queen Weret I and the left figure Weret II, see Perdu, "Khenemet-nefer-hedjet," p. 75.

e) A cylinder seal formerly in the Michailidis collection inscribed with the name of a Queen Weret, see Brunton, "Khnumt-Hezt," p. 101[7]; Perdu, "Khenemet-nefer-hedjet," p. 77.

f) A cylinder seal in the Iversen collection inscribed with the name of a Queen Weret, see Brunton, "Khnumt-Hezt," p. 101[8]; Perdu, "Khenemet-nefer-hedjet," p. 78.

g) Kahun Papyrus (Berlin 10003) dated to a year 9, possibly of Senwosret III, mentions a wood statue of Queen Weret I, see Borchardt, "Papyrusfund," p. 96; Perdu, "Khenemet-nefer-hedjet," p. 71; Ulrich Luft, *Die chronologische Fixierung des ägyptischen Mittleren Reiches nach dem Tempelarchiv von Illahun* (Vienna, 1992), p. 31.

h) An inscribed black granite fragment from Lahun (tomb 7?), see Petrie, *Lahun* II, pp. 20–21, pl. 15; Brunton, "Khnumt-Hezt," p. 101[10]; Perdu, "Khenemet-nefer-hedjet," p. 72.

i) Inscribed fragments from Lahun, see Petrie, *Lahun* II, p. 15, pl. 16, no. 18; Brunton, "Khnumt-Hezt," p. 101[5]; Perdu, "Khenemet-nefer-hedjet," p. 72.

j) In 1996, part of a red granite false door was seen by the author in the Bastet temple at Bubastis, unpublished.

k) A complete, 70 cm high, seated black granite statue of a Queen Weret in the Louvre (E 32.564), see Christiane Ziegler, "Une reine égyptienne entre au Louvre," *Revue du Louvre: Evénement* (1998): pp. 13–15; idem, *Le Louvre: Les antiquités égyptiennes* (Paris, 1997), p. 39.

[427] Another possible place for her tomb is chamber O4 in the pyramid of Amenemhat III at Dahshur (Arnold, *Amenemhet III*, p. 26, pl. 45). The room was designed as a turning chamber for the royal coffin, but was subsequently transformed into a burial chamber by sinking a stone sarcophagus into the pavement. The sarcophagus was removed at a later period, perhaps in the New Kingdom, but its foundation pit suggests that it was 1.07–1.08 x 2.58–2.61 x 1.20 m, dimensions that equal those of the sarcophagus of Amenemhat III. Because of its size, the sarcophagus must have been introduced *before* the entrance corridors were lined with stone (unless the sarcophagus consisted of separate slabs). The sarcophagus was, therefore, a supplement to the original plan and not intrusive. In order to remove it, the stone robbers had to tear out the lining on the south side of the entrance corridor. Small pieces of gold foil and bones found in the foundation pit confirm the presence of a burial.

[428] De Morgan, *Dahchour* I, p. 151.

[429] Josef Wegner, "South Abydos: Burial Place of the Third Senwosret? Old and New Excavations at the Abydene Complex of Senwosret III," *KMT* 6 (Summer 1995): pp. 59–71.

[430] Audran Labrousse and Jean-Philippe Lauer, *Les complexes funéraires d'Ouserkaf et de Néferhétepès*, 2 vols. (Cairo, 2000).

[431] For the head of a colossal statue of Userkaf in Cairo (JdE 52501), see Sophie Labbé-Toutée and Christiane Ziegler, in *Egyptian Art in the Age of the Pyramids*, exh. cat. (New York, 1999), pp. 314–15, no. 100.

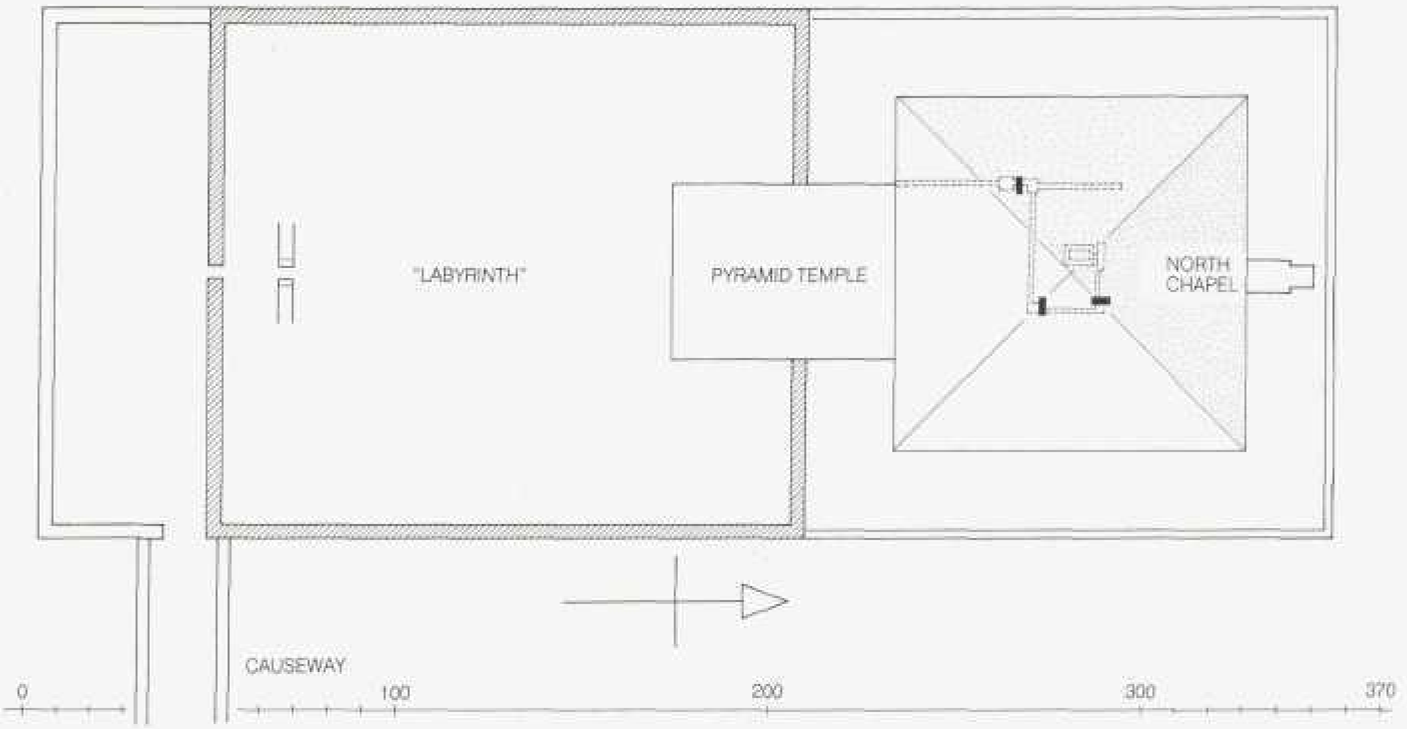

Fig. 37. Suggested reconstruction plan of the pyramid complex of Amenemhat III at Hawara. Drawing D.A.

surface after the excavation of Senwosret III's south temple is completed and compared to Userkaf's wall decoration.[432]

Lauer and I.E.S. Edwards believed that only topographical difficulties or preexisting buildings prevented the erection of a more substantial temple to the east of Userkaf's pyramid. Herbert Ricke assumed that requirements of the sun cult forced the shift of the temple from the east to the south of the pyramid.[433] The published results of the excavation do not address the slight possibility that the south part of the complex was a later addition.

In the complex of Senwosret III, the south temple was certainly a later addition. The original layout included a reduced pyramid temple that contained only the basic elements of the inner temple (Ricke's "Totenopfertempel"[434]), probably consisting of a statue chapel, a room with ritual scenes, a "square" antechamber, and an offering hall. In opposition to a full-scale pyramid temple, as it was last realized by Senwosret I and probably Amenemhat II, Senwosret III's small building lacked the outer temple (Ricke's "Verehrungstempel"[435]) with a *per-weru* (entrance hall) and its side rooms, a columned or pillared court, and a transversal corridor.

The question remains whether or not Senwosret III's reduced temple was at first considered sufficient and deemed inadequate only later, resulting in the addition of the missing sections in at least part of the south temple. In that case, the architects would have accidentally(?) recreated the layout of Userkaf's complex. However, the south temple of Senwosret III cannot have contained just the omitted outer temple as Userkaf's south temple did, but also must have included *new* elements. Because of constraints of space, an extension of the pyramid temple was impossible.[436]

In order to refine the distinction between the outer part of the pyramid temple in the tradition of the Old Kingdom, and the new elements, one has to consider the position of the complex of Senwosret III within the development of Twelfth Dynasty royal cult complexes. The motivation or the need to build large pyramid temples of the traditional Old Kingdom type had already faded by the reign of Senwosret II, who built a chapel only 15 x 23 m.[437] In its place another idea of the royal cult seems to emerge, perhaps manifesting itself in the so-called *sed*-festival chapel to the north of Senwosret II's complex.[438] These buildings probably were intended to invigorate a possibly faltering belief in divine kingship. Political events during the reign of Senwosret III, such as the alteration of nomarchial rule, the growth of bureaucracy, and forced labor, may have further contributed to the development of new forms of the royal cult.[439]

The direction of this development can be better understood by examining the cult complex built by the succeeding king, Amenemhat III, at Hawara ("Labyrinth"), which offers interesting parallels to the south temple (fig. 37). From the reports of Greek and Roman visitors and William Flinders Petrie's excavation results, one can deduce that Amenemhat III's complex contained a considerable assemblage of somewhere between twelve and forty-two chapels and a great

[432] Scenes of fishing and fowling, the trapping of songbirds in an orchard, ships being towed or under sail, offering bearers, and butchers leading and cutting up oxen and other horned animals were included in the decorative program. Beautiful examples, some of them found in 1928, are published in W. Stevenson Smith, *The Art and Architecture of Ancient Egypt*, rev. ed. William K. Simpson (New Haven, 1998), figs. 121–22, 124. See now Audran Labrousse and Jean-Philippe Lauer, *Les complexes funéraires d'Ouserkaf et de Néferhétepès*, 2 vols. (Cairo, 2000).

[433] Ricke, *BemerkungenAR* II, p. 68.

[434] Ricke, *BemerkungenAR* II, pp. 26–35.

[435] Ricke, *BemerkungenAR* II, pp. 35–86.

[436] The area east of the old complex would have permitted an extension of about 30–60 m.

[437] Petrie, *Lahun* II, p. 5.

[438] The relief decoration of the south temple included *sed*-festival scenes, and the "first occasion of the *sed*-festival" was part of the monumental facade inscription of the pyramid temple (see here pp. 134, 143–44). One might conclude from this material that the south temple was formulated not necessarily as a *sed*-festival building but in expectation of the prospective feast.

[439] For changes in the reign of Senwosret III, see Louise Gestermann, "Der politische und kulturelle Wandel unter Sesostris.–Ein Entwurf," in *Per aspera ad astra*, ed. Louise Gestermann and Heike Sternberg-El Hotabi (Kassel, 1995), pp. 31–50.

number of statues of the king and the deities of all the nomes of Egypt.[440] This aspect apparently represents a return to the Early Dynastic practice of gathering the gods of Egypt (the *šmsw-Ḥr*) around the Horus king in order to reestablish their alliance, an event that seems to have occurred every second year along with the collection of taxes.[441] A similar assemblage of divine chapels was included in the Djoser complex,[442] where at least twenty-five chapels surrounded a festival court for the visiting gods, while the residence of the Horus king (temple T) and his throne baldachin stood nearby.

From such possible parallels one might conclude that the south temple cannot have simply included the units absent from the pyramid temple. Instead, the south temple must have reflected a reassessment of the status and nature of kingship and the king's needs for the afterlife. The temple therefore marked an important step in the development of royal cult buildings, possibly moving toward the "mansions of millions of years" that appeared and flourished during the New Kingdom.[443] That the south temple's function differed from that of the traditional pyramid temple was emphasized by the design of the building's exterior. The south temple lacked both the cavetto cornice and the triple corner torus found in the pyramid temple and the chapels of the queens' pyramids, and the corners and upper edge of the building apparently remained unarticulated.

The royal pyramid temples built by Senwosret II and Senwosret III reveal the decline and shrinkage of this architectural feature. However, the reconstruction of the outlines of the pyramid temple of Amenemhat III at Dahshur seems to contradict this development, as it suggests that a columned forecourt was located between the inner temple and the outer enclosure wall.[444] In light of recent excavations at Senwosret III's complex, this reconstruction seems incorrect, and a smaller pyramid temple more plausible.

The Development of the Queens' Chambers

Three different types of underground apartments were used for the interment of the queens and princesses of Senwosret III's court.

THE DOUBLE-FLOOR TOMB TYPE

The tombs under the four north pyramids represent a type that is to some extent anticipated by four tombs of royal women at the pyramid of Senwosret II at Lahun (shafts 7–10).[445] The Lahun tombs follow an axial plan with the sequence of shaft-antechamber-crypt; attached to the antechamber is a niche or small side chamber, called a "treasury" by Petrie. A canopic niche opens off one side of the antechamber and an "offering chamber" is situated behind the sarcophagus, near the rear wall of the crypt. The antechamber is on a slightly higher level and has a stone blocking that would have sealed the crypt. However, this ideal plan was never realized in any of the four Lahun tombs, which appear to have been hastily completed.

Another series of double-floor Middle Kingdom tombs was excavated at Hawara, but inadequately published by Petrie.[446] Here, the upper chambers had either vaulted or saddle roofs. After the sarcophagi were placed in the lower chambers, the access ramps and the entrances into the crypts would certainly have been blocked.

The original plan of the Lahun tombs can be more easily understood in the four more or less finished tombs north of the pyramid of Senwosret III at Dahshur. The main point at which the plans of these tombs diverge from those at Lahun and Hawara is the location of the subsidiary chambers.

1. In the Dahshur tombs, the canopic niches are no longer in the crypt, but instead become separate chapels or shrines placed in the side walls of the entrance corridors below the upper chambers.
2. The "treasuries" are now accessed through the east walls of the crypts.

The two queens' tombs in the pyramid of Amenemhat III at Dahshur are similar.[447] In accordance with their slightly later date, additional developments have occurred.

1. The canopic niche has been moved from the lower level of the crypt to the upper floor.
2. The "treasury" and "offering chamber" have both been eliminated.
3. The antechamber is lowered to the level of the crypt, leaving the entrance corridor with the canopic niche on the upper level.
4. The concept of the tomb is expanded with the addition of a south tomb, an idea that certainly follows the example of pyramids 7 and 9 in the Senwosret III complex at Dahshur (see below).

THE TOMB OF QUEEN WERET II

The tomb of Queen Weret II (pyramid 9) at Dahshur represents a type of its own, which was certainly influenced by the plan of the king's tomb. It was copied to some degree only once, in the mastaba of Khnumhotep in the private cemetery north of Senwosret III's complex.[448] Since Weret II's tomb did not represent a common type, one might ask whether Khnumhotep himself or perhaps his architect was somehow involved in the construction of Weret's burial place.

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[440] A. B. Lloyd, "The Egyptian Labyrinth," *JEA* 56 (1970): pp. 81–100. For Petrie's description of the vast sculpture program, see *Labyrinth*, pp. 30–32. Classical descriptions are found mainly in Herodotus, *Histories* 2.148, Strabo, *Geography* 17.1.37, and Pliny, *Natural History* 36.13.19.

[441] Dieter Arnold, "Royal Cult Complexes of the Old and Middle Kingdoms," in *Temples of Ancient Egypt*, ed. Byron E. Shafer (Ithaca, New York, 1997), pp. 32–39.

[442] Lauer, *Step Pyramid*, pp. 67–70, pls. 61–69.

[443] That the cultic concept of a "mansion of millions of years" already existed in the Middle Kingdom is clearly shown by a quarry inscription found at Tura, which dates to the year 43 of Amenemhat III. The text commemorates the opening of a new section of the quarry at Tura, where limestone was extracted for a "mansion of millions of years" (Vyse, *Gizeh*, pl. opposite p. 94; *LD*, vol. 2, pl. 143i). The building mentioned is actually called "mansion of this *ḥm-nṯr* of millions of years." The incongruous word *ḥm-nṯr* (= "priest"[?]) is probably a scribal error. See Gerhard Haeny, "New Kingdom 'Mortuary Temples' and 'Mansions of Millions of Years,'" in *Temples of Ancient Egypt*, ed. Byron E. Shafer (Ithaca, New York, 1997), pp. 86–126.

[444] Arnold, *Amenemhet III*, pp. 61–64, pl. 36.

[445] Brunton, *Lahun* I, pls. 21–22.

[446] W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* (London, 1890), pl. 7.

[447] Arnold, *Amenemhet III*, pl. 50.

[448] Number 2 of Pierre Vasin, see De Morgan, *Dahchour* I, p. 19, fig. 20.

The tomb of Queen Weret II lies on one level and, like a royal tomb, contains a true antechamber and a vaulted crypt with a granite sarcophagus. A separate chamber that houses the canopic niche also distinguishes the tomb. The three rooms are not aligned along a central axis but instead are skillfully placed at right angles to each other, creating a square ground plan.

The outstanding peculiarity of the tomb of Queen Weret II, and also of the south tomb under pyramid 7, is an underground shrine or cenotaph located far to the south of the actual burial. The purpose of such south tombs is still unknown, but based on evidence found at the pyramid of Amenemhat III at Dahshur, we have reason to believe that one major aspect of these shrines was the burial of a statue of the deceased. Here, the king and two queens have large limestone shrines located far to the south of the actual tombs, though still under the pyramid. Six additional, smaller shrines apparently represent the south tombs for the six small tomb chambers also under the pyramid.[449] The south tomb Amenemhat III/S15, which seems to belong to tomb Amenemhat III/W13 of an anonymous queen, contained an alabaster canopic chest, suggesting that the shrine served as a large canopic chamber. However, the chest seems only to have been stored in the shrine while the canopic niche at Amenemhat III/W17 was being completed. Since the niche remained unfinished when the pyramid was abandoned, the canopic chest was left in the south tomb. Tomb robbers left behind not only the chest but also important fragments of the intended contents of shrine Amenemhat III/W13, which included several pieces of gilded wood furniture with carnelian, ivory, and faience inlays, very similar to the contents of the south tomb of Queen Weret II (pp. 78, 126–27). More important was the female head of a wood statuette about 1 cubit high with a drill hole at the top, suggesting that the figure was adorned with ka arms, similar to those on two statues of King Hor.[450] Queen Weret II's south tomb may have included a similar ka statuette, although no identifiable pieces of one were found.

The addition of underground statue shrines or south tombs was an important development in late Twelfth Dynasty tomb building. It is possible that their placement to the south of and a long distance from the main burial is meant to symbolize Abydos and that the statue burials served as Osiride cenotaphs, transferred to the residential necropolis in the north.[451] Royal Old Kingdom tombs were regularly supplied with south tombs or so-called ka pyramids from the time of King Djoser until the reign of Senwosret I[452] or even Senwosret III (pp. 84–86).[453] The later kings of the Twelfth Dynasty preferred the new type of an elaborate underground south tomb.

THE SARCOPHAGUS-NICHE TYPE

The most humble tombs are the eight crypts (tombs 5–12) for royal women built in the subsidiary queens' gallery. Each of these crypts consists of a plain, unlined chamber just wide enough to accommodate a sarcophagus. In most cases, the canopic chests had to be placed in the corridor in front of the chamber. The pottery vessels and offerings that filled the east chamber of the double-floor type were deposited beside the sarcophagus. These simple tombs fulfilled only the minimal requirements of an upper-class burial of the period,[454] but they were nevertheless deemed sufficient to serve as tombs for members of the royal family.

Archaism in the Architecture of Senwosret III

The pyramid complex of Senwosret III contains numerous archaisms that highlight the customary reliance of Egyptian architecture on archaic prototypes.[455] These archaisms suggest that the builders had thoroughly studied and recorded sacred ancient forms. A major source of these features is within sight of Senwosret's pyramid: the outlines of the Djoser complex appear on the northern horizon. It is certain that Senwosret III's priests and artists visited and copied the ancient monument, but how far they actually penetrated the intricate symbolism of the architectural forms of King Djoser[456] is yet to be explored.

Since details of various archaistic features have been discussed above, a short list of the salient characteristics will suffice here.

1. The outer and inner enclosure walls were structured with projections and recesses that were further embellished with pairs of vertical grooves. In addition, the upper part of the stone inner enclosure was decorated with a "window" pattern formed by slightly sunken rectangles. The motif of projections and recesses had its origin in archaic paneled walls.[457]

2. The complex had a distinct north-south orientation after the construction of additions.

3. An entrance gate was placed at the south end of the east side of the outer enclosure wall.

4. Triple corner tori and cavetto cornices with ledges beneath them were used.

5. Slightly curved doorframes are characteristic of the architecture during the reign of Senwosret III. This feature appears most noticeably in the doorways of the pyramid temple, the funerary apartments of the king, the funerary chapels

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[449] Along the north-south corridor, see Arnold, *Amenemhet III*, plan I.

[450] De Morgan, *Dahchour* I, pp. 91–95, figs. 212–16, 220, pls. 33–35. The small statuette was presumably intended for a statue burial. The wheels under the larger figure (Egyptian Museum, Cairo JdE 30948, CG 259) show that it could be removed from the shrine and was meant to receive cult in an aboveground chapel. It was probably buried in the king's tomb because no chapel could be erected. See Mohamed Saleh and Hourig Sourouzian, *The Egyptian Museum Cairo* (Mainz, 1987), no. 117.

[451] That the building of private cenotaphs flourished at Abydos during the Middle Kingdom has been shown by David O'Connor, "The 'Cenotaphs' of the Middle Kingdom at Abydos," in *Mélanges Gamal Eddin Mokhtar*, vol. 2, ed. Paule Posener-Kriéger (Cairo, 1985), pp. 161–77.

[452] Arnold, *Senwosret I*, vol. 1, pp. 72–75.

[453] The pyramid of Amenemhat III at Hawara seems to contain a "south tomb," but this could not be explored because of the high level of the groundwater, see W. M. Flinders Petrie, *Kahun, Gurob, and Hawara* (London, 1890), p. 15.

[454] De Morgan, *Dahchour* I, figs. 19, 30, 32, 37, 40, 59, etc.

[455] This aspect of Egyptian architecture has not yet received a comprehensive analysis.

[456] As analyzed by Ricke, *BemerkungenAR* I.

[457] Ricke, *BemerkungenAR* I, pp. 42–59; II, pp. 19–21; Barry J. Kemp, *Ancient Egypt: Anatomy of a Civilization* (London, 1989), pp. 53–59.

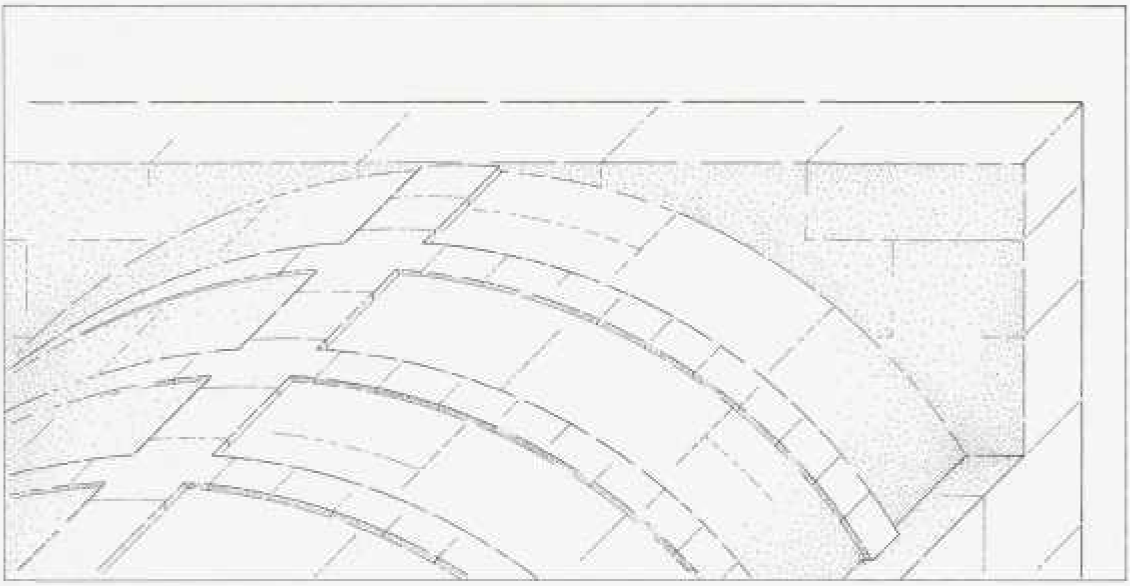

Fig. 38. Hypothetical reconstruction of a chapel roof in the south temple decorated with rows of roof tiles. See fig. 35. Drawing D.A.

and underground apartments of the queens' pyramids, and the south temple.

Curved doorframes also distinguish the burial chamber of Senwosret II at Lahun, the temple of Senwosret III at Qasr el-Sagha, and the temple of Amenemhat III at Medinet Madi, all of which are in the Faiyum.[458] This element is restricted to the period from Senwosret II to Amenemhat III. The prototype is certainly the doorframes in the Djoser complex at Saqqara.[459] The same feature reappears in the *Akhmenu* of Thutmosis III at Karnak,[460] in the Ramesseum, and in the temple of Ramesses II at Abydos.[461]

6. The tree-trunk ceiling pattern of the T-shaped chamber and its passage obviously follows examples in the Djoser complex or other Old Kingdom prototypes (pp. 57–58). The limited and apparently distinct application in a few monuments of Senwosret III suggests a specific symbolic quality connected with this ancient element.

7. The discovery of curved roof tiles (p. 103; fig. 35) suggests a quite exceptional, vaulted roof type, that seems to be inspired by chapel roofs of the Djoser complex (fig. 38).

It is quite obvious that these archaisms were not mere stylistic peculiarities, but rather reflect a broader tendency to depart from the immediate past, the reigns of Amenemhat II and Senwosret II, and to relate Senwosret III to a more ancient period of Egyptian history.[462] The construction of the king's so-called cenotaph near the royal cemetery of the First and Second Dynasties at Abydos may have arisen from the same policy.[463] Senwosret III and Amenemhat III probably intended to be regarded as incarnations of archaic kingship and thus emphasized their connection to creation and "the first time." These recurring allusions to "the king of the old age," together with architectural archaisms, seem to reveal a pressing attempt to revitalize the feeble image of kingship after the time of Senwosret II.

[458] W. M. Flinders Petrie, *Illahun, Kahun, and Gurob* (London, 1891), p. 3; Dieter Arnold and Dorothea Arnold, *Der Tempel Qasr el-Sagha* (Mainz, 1979), p. 10, figs. 3, 7, pl. 11b; Rudolf Naumann, "Der Tempel des Mittleren Reiches in Medinet Madi," *MDAIK* 8 (1939): p. 187, fig. 1.

[459] Jean-Philippe Lauer, *La pyramide à degrés: L'architecture*, vol. 2 (Cairo, 1936), pls. 63[2–3], 68[1], 80, 91.

[460] Jean Lauffray, "Le secteur nord-ouest du temple jubilaire de Thoutmosis III à Karnak," *Kêmi* 19 (1969): p. 197, fig. 6.

[461] Unpublished.

[462] For changes in the reign of Senwosret III, see Louise Gestermann, "Der politische und kulturelle Wandel unter Sesostris.–Ein Entwurf," in *Per aspera ad astra*, ed. Louise Gestermann and Heike Sternberg-El Hotabi (Kassel, 1995), pp. 31–50.

[463] One might even ask whether the "old" features of the royal portraits of Senwosret III express that same intention. One has to admit, however, that sculpture depicting the king as a primordial deity is known only from the reign of Amenemhat III. Such statues include the torso of Amenemhat III in priestly costume and the double statue of Amenemhat III from Tanis (Mohamed Saleh and Hourig Sourouzian, *The Egyptian Museum Cairo*, [Mainz, 1987], nos. 103–4).

APPENDIX

by Adela Oppenheim

Finds from the Tombs of the Royal Women

The following provides a brief summary of the objects found in the tombs of the queens and princesses buried around the pyramid of Senwosret III. The objects will be illustrated and published in a more comprehensive fashion in a future volume. Because a substantial amount of pottery was found in these tombs, particularly in the apartments of Queen Weret II (pyramid 9), it has been omitted and will be published separately by Susan Allen. The objects and pottery found above ground are a complex mixture of Middle Kingdom material, New Kingdom objects that may have been left as offerings in the temples and chapels, and post–New Kingdom pieces associated with the substantial number of secondary burials that covered the site; presenting even a summary of this material is a difficult undertaking that cannot be attempted here.

FINDS FROM QUEENS' TOMBS 1–12

Sand above Secondary Shaft

Vessel Fragment (1990.1)

The fragment includes part of the wall and the protruding rim of a cylindrical alabaster vessel. The outside was highly polished, while the inside was left rough.

Dimensions: L. 4.75 cm; W. 3.85 cm; original Diam. 10.40 cm

Vessel Fragment (1990.3)

The fragment originates from the curved wall of an alabaster vessel. The piece becomes noticeably thicker toward the bottom. The exterior was not highly polished, while the interior was left rough and retains fine drill marks on the upper half; the lower section has what appear to be tool marks.

Dimensions: L. 10.5 cm; W. at widest point 5.6 cm; approximate original Diam. 10 cm

Fill of Queens' Shaft

Vessel Fragment (1990.2)

The fragment includes part of the wall and the protruding rim of a cylindrical alabaster vessel. The exterior was polished, while the inside remained rough.

Dimensions: L. 3.10 cm; W. 4.85 cm; original Diam. 7.80 cm

Queen's Tomb 2 (Queen Nefret-henut)

Vessel Fragment (1990.7)

The fragment originates from the curved wall of an alabaster vessel; the top of the fragment is fairly thin, while the lower section is distinctly thicker. The exterior was highly polished.

Dimensions: L. 12 cm; W. at widest point 8.25 cm

Fragment of Square or Rectangular Object (1990.10)

The fragment comes from the corner of a square or rectangular faience object, possibly the base of a statuette. Three sides with smooth surfaces are preserved; one of them is slightly convex. One surface has an uneven blue-green color, while the other two are a greenish gray.

Maximum preserved dimensions: H. 1.35 cm; L. 2.40 cm; W. 1.63 cm

Queen's Tomb 5

Fragments of Gold Foil (1990.68)

Queen's Tomb 8 (Princess Menet)

Vessel Fragment (1990.14)

An uneven fragment of an alabaster vessel with a polished exterior.

Approximate dimensions: L. 9 cm; W. 6 cm

Queen's Tomb 9 (Princess Sithathor?)

Eye Inlay (1990.61)

One of the eye inlays from the princess's anthropoid coffin was made from a single piece of alabaster into which an obsidian pupil was inserted. Under the pupil are circular drill marks. The pupil is not completely round but was flattened at the top. The outer edges of the whites of the eye have a delicate pink color.

Dimensions: L. 7.3 cm; H. at center 2.5 cm; Diam. of pupil 3.2 cm

Beads (1990.62)

Five cylinder beads and two barrel beads, all made of carnelian, were found in the chamber.

Dimensions: L. of barrel beads 1.15–1.24 cm; L. of cylinder beads .43–.91 cm

Beads (1990.65)

Two heavily corroded copper beads that have loops at the top and tapering bottoms. The bottoms of the beads may be made of ivory, but this area is now covered by corroded metal.

Dimensions: L. 1.19–2.15 cm; W. of loop .6–.62 cm; W. of bottom .34–.39 cm

Beads (1990.66)

Four faience cylinder beads varying in color from gray to pale green.

Dimensions: L. 1.07–1.77 cm

Bead (1990.67)

A tiny, bright blue-green faience disk bead.

Dimensions: L. .3 cm

Pieces of a Ceremonial Whip (1990.63)

Seven carnelian cones, fifteen faience cones, and two long faience tubes from a ceremonial whip were found in the tomb. Remains of 2 mm wide stripes of gold foil adhered to the bottom of some of the faience cones. The color of the faience varied from pale green or blue to bright green, and the string holes were not precisely centered.

Dimensions: Carnelian cones: H. .81–1 cm; Diam. at top .70–.97 cm; Diam. at bottom 1.10–1.59 cm

Faience cones: H. .78–1.29 cm; Diam. at top .74–1.40 cm; Diam. at bottom 1.21–1.90 cm

Faience tubes: H. 8.46–9.22 cm; Diam. at top .8–.86 cm; Diam. at bottom 1.07–1.11 cm

Small Fragments of Gold Foil (1990.64)

Queen's Tomb 11

Vessel Fragment (1990.15)

Fragment of the protruding rim and the body of a cylindrical alabaster vessel. The exterior was polished.

Dimensions: original Diam. 7.8 cm

Vessel Fragment (1990.97)

Fragment of the concave side and flat bottom of a cylindrical alabaster vessel. The exterior was polished. Clinging to the inside of the vessel and preserved in traces on the outside were the remains of a powdery white substance.

Dimensions: original Diam. 5.8 cm

Scarab Ring (1990.70)

The light blue turquoise scarab has a gold base plate and a gold wire shank with twisted ends. The basic body markings of the beetle are indicated with shallow incised lines. The chased base plate is inscribed "*nswt bity Ny-Maat-Re*," which is the throne name of Amenemhat III.

Dimensions: Scarab: L. 1 cm; W. .67 cm; H. .49 cm; Diam. of ring 1.54–1.85 cm

Scarab (1990.71)

The deep blue lapis lazuli scarab has a damaged head that must be the result of a ritual "killing." A hole passes through the length of the scarab, while a second attachment hole that does not pass completely through the body is located on the underside.

Dimensions: L. 1.26 cm; W. .94 cm; H. .50 cm

Bracelet or Anklet Spacer (1990.69)

Part of a bracelet or anklet spacer composed of tiny gold barrel beads. Eleven rows remain, each of which has three beads.

Dimensions: L. 1.43 cm; W. .56 cm

Beads (1990.73)

Twelve faience or Egyptian blue barrel beads that vary in color from bright blue to blue gray.

Dimensions: L. 1.1–1.9 cm

Beads (1990.73a)

Twenty-two small disk beads in carnelian (1), a dark brown stone (3), and faience (18).

Dimensions: Diam. .25 cm

Beads (1990.74)

Nineteen barrel beads and eighty-five cylinder beads, all in carnelian.

Dimensions: L. of cylinder .55–.87 cm; L. of barrel .97–1.58 cm

Beads (1990.75)

Twenty green feldspar barrel beads.

Dimensions: L. 1.25–1.43 cm

Beads (1990.80)

One ball bead and one cylinder bead, both in faience.

Dimensions: Diam. of ball .48 cm; L. of cylinder .95 cm

Beads (1990.76)

Five papyrus-shaped faience beads that presumably originate from a girdle. Each bead has two string holes at the top and one at the bottom.

Dimensions: H. 1–1.24 cm; W. at bottom .45–.60 cm; W. at top .41–.61 cm

Beads (1990.77)

Nineteen faience foliate beads that presumably originate from a girdle. The beads are pierced in two directions to allow vertical and horizontal threading. Each side of the cubelike beads has a cross-shaped channel cut into it.

Dimensions: top to bottom .40–.59 cm; side to side .52–.63 cm

Diadem (1990.78)

Several fragments of a copper or probably silver diadem were found. The circlet of the diadem consisted of a lattice with alternating large, horizontally oriented rectangles and small, vertically oriented rectangles. The ribbons that fell behind the circlet of the diadem tapered downward and were decorated with the same lattice pattern, which decreases in size as the ribbons narrow. In the lattice pattern are remains of faience rectangles and wood inlays. The circlet seems to have been built around a wood core, parts of which are preserved, and it was closed by means of a sliding metal clasp. The metal knot that would have been placed at the back of the circlet is also preserved. It consists of a central circle with papyrus or lotus flowers on either side; of the faience inlays only that of the central circle remains.

Dimensions: Diam. of circlet 15–16 cm; H. of circlet 2.4 cm; L. of preserved ribbons approx. 40.7 cm; W. of ribbons .5–1.5 cm; W. of knot 4.1 cm; H. of knot 2.9 cm

Mirror (1990.79)

The copper mirror originally consisted of a polished metal surface supported by a wood handle covered with gold foil. The main surface of the mirror is oval, with the top and bottom flatter than the sides. The tang tapers downward, and bits of the wood handle still adhere to it. The handle, which was found in two parts, has a rounded bottom.

Dimensions: H. with tang 14 cm; W. 12.20 cm; H. of handle 6.36 cm; Th. of handle 1.62–2.01 cm

Eyebrow Inlay

Fragment of an Egyptian blue eye inlay that must have come from a wood coffin. The inlay has one intact, curved end, indicating that it probably originates from an eyebrow. Traces of gold foil adhered to the inlay.

Dimensions: preserved L. 5.50 cm; Th. 1.50 cm; W. at widest point 1.73 cm

Small Fragments of Gold Foil (1990.72)

Queen's Tomb 12

Bracelet or Anklet Spacer (1990.11)

The gold spacer includes thirty rows of tiny cylinder beads soldered onto a solid gold sheet. Each row consists of a narrow gold tube onto which were threaded four wider cylinder beads. The tube is visible between the larger beads, creating a pattern of alternating larger and narrower forms. The spacer was found behind the north side of the sarcophagus between the sarcophagus and the wall of the chamber. Also found in the same location were pottery, bits of bone, and fragments of gold foil (1990.12).

Dimensions: L. 4.52 cm; W. .925 cm

Vessel Fragment (1990.16)

The small fragment includes part of the protruding rim and part of the wall of a cylindrical alabaster vessel. The exterior was polished. The fragment was found behind the north wall of the sarcophagus.

Dimensions: original Diam. 8 cm

Small Fragments of Gold Foil (1990.12)

FINDS FROM PYRAMID 9 (QUEEN WERET II)

Despite the devastation and destruction wrought by the tomb robbers, fragments of objects remaining in the debris of the queen's underground chambers provide at least a hint of the beautiful, finely crafted objects that composed the royal funerary outfit. Since a more detailed study of the material will be published in a subsequent volume, only short summaries will be given here. Three groups of objects can be distinguished: 1) the material from the antechamber, crypt, and canopic chamber of the north tomb; 2) objects from the south tomb; and 3) the jewelry deposit found at the bottom of the shaft.

North Tomb

The burial in the north tomb was so meticulously stripped that only a few scraps of valuable goods remained. A glossy white steatite cylinder bead, a turquoise or feldspar barrel bead, and small pieces of gold foil were among the remains found in the antechamber, where they were probably dropped by thieves as they escaped with their loot.

Found on the ledge behind the sarcophagus in the crypt were a beautifully polished carnelian barrel bead, four gold disk beads, seventy-three turquoise disk beads, and seventy lapis lazuli disk beads, all of which must have fallen from the mummy as it was removed from the sarcophagus. Also found in the same location were some bits of plaster with red and black color that seem to have been painted in an unknown design, plaster with five parallel straight lines scored into the surface, indicating that it was originally covered in gold foil, and some scraps of gold foil, all of which must have fallen from an anthropoid coffin. Most of the recovered pieces of the fowl-shaped vessels and the intact water jar lid were found in the crypt, along with additional scraps of gold foil, small bits of alabaster, and lumps of resin.

A number of small items, including a short gold tubular bead, a turquoise disk bead, and more bits of gold foil were found in the passage, where evidence suggests that the mummy was destroyed (p. 81). The objects probably fell from the body of the queen during the desecration of the tomb. Most interesting is a small gold reef knot, the underside of which is hollow and was found filled with a soil-like substance that could have been decayed wood. The piece could have belonged to an item of jewelry that was placed on the body, though it has no string holes or other means of attachment, it could have been an amulet that was placed near the mummy,[1] or it could have been part of the anthropoid coffin. In the canopic chamber were found many of the recovered fragments of one alabaster canopic jar (p. 81), a white barrel bead, a dark ball bead, and a curved copper object that seems to have been a hook or a furniture attachment.

A large amount of pottery was preserved in the tomb, particularly in the antechamber, presumably because the thieves deemed it to be of little value. Many of these vessels were broken and smashed during the plundering of the tomb. The original number, date, type, and placement of the vessels are being studied by Susan Allen, along with the pottery from the south tomb. Remains of animal bones found in connection with the vessels are being studied by Salima Ikram. Parts of the queen's skeleton were also preserved and are being studied by Roxie Walker. All wood objects and textiles had either decayed into an unrecognizable form or were reduced to powder. The following are among the more complete items found in the tomb.

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[1] The mummy of Tutankhamun had reef-knot amulets made of long strips of gold foil that were placed below the shoulders of his mummy (Nicholas Reeves, *The Complete Tutankhamun* [London, 1990], p. 113, upper right corner; Howard Carter, *The Tomb of Tut-ankh-amen*, vol. II [London, 1927], p. 122, pl. LXXXIII).

Alabaster Lid (1994.1329)

The alabaster lid from a water jar was found in the burial chamber wedged under the overturned lid of the sarcophagus. The lid has a slightly curved top and sides that widen downward. It seems to have been used as a hammer during the destruction of the tomb.

Dimensions: H. 12.6 cm; Diam. of foot 16.4 cm

Fowl-Shaped Vessel (1994.1330)

Most of one-half of this alabaster, fowl-shaped vessel was reconstructed from fragments found in the burial chamber. Protrusions on the surface indicate one plucked wing and one plucked leg. The top of the vessel narrows to a circular neck.

Dimensions: L. 35.2 cm; maximum W. 15.2 cm; Th. .90–1.2 cm

Fowl-Shaped Vessel (1994.1331)

The bottom third and part of one side were all that could be reconstructed of one-half of an alabaster fowl-shaped vessel found in the burial chamber. One protrusion on the surface indicates a plucked leg.

Fowl-Shaped Vessel and Lid (*1994.1332, .1335*)

Most of one-half of an alabaster fowl-shaped vessel was reconstructed from fragments found in the burial chamber. The vessel is rounder and plumper than the others that were recovered. Protrusions on the surface delineate one plucked wing and one plucked leg. The top of the vessel narrows to a circular neck. One lid fits into this opening and must originate either from this vessel or another of a similar size.

Dimensions: L. 28.9 cm; maximum W. 16 cm; Th. .5–.9 cm

Fowl-Shaped Vessel (1994.1333AB)

All of one side and more than half of the second side of an alabaster, fowl-shaped vessel were reconstructed from fragments found in the burial chamber and passage. Both parts preserve protrusions on the surface indicating the plucked wings and legs. One half preserves the top of the vessel, which narrows to a circular neck.

Dimensions: L. 18.8 cm; maximum W. 7.3 cm; Th. .50–1.2 cm

South Tomb

The small, cavelike chamber of the south tomb was also thoroughly plundered (pp. 77–79, 82). A number of pieces of pottery and some pieces of decayed wood were recovered, including one board that preserved the name of the queen in black ink (p. 75; fig. 21b). Of great interest are a number of small fragments that must originate from the objects that were deposited here including ivory pieces carved into the shape of hieroglyphs, rectangular blue faience inlays, hieroglyphs formed from metal wires, a gold plaque inlayed with rock crystal rosettes, and metal attachments from furniture or other objects. A preliminary report of the most interesting pieces is provided below.

Inlaid Plaque (1994.1341, .1342)

Part of a flat gold plaque with rock crystal and carnelian inlays was found in debris. The largest remaining piece of the plaque has narrow gold borders on two long sides. In the center are two rows of three rock crystal circles set into gold cloisonnés. Rosettes were originally painted onto the undersides of the rock crystal circles, and traces of these patterns remain.[2] Each circle has a small hole in the center through which a metal nail with a gold tip was inserted, securing the plaque to another object, which must have been made of wood or another soft material. The spaces between the circles and between the circles and the frame were filled with shaped pieces of carnelian. In addition to the largest preserved piece of the plaque, a number of loose rock crystal circles, carnelian inlays, inlays in other materials, and gold-tipped nails were also recovered.

Given the tremendous attention to detail and the fine craftsmanship displayed in the surviving fragments, the plaque must have belonged to an object of great beauty and presumably ritual significance. Since the plaque has a flat back, it is assumed that it comes from an object with level surfaces, as opposed to a statue, which would have had many curves. The object could have been a box, a rectangular base of an object, such as a statue, or a piece of furniture.[3]

Dimensions: preserved L. 8.9 cm; preserved W. 3.1 cm

Ivory Inlays (1994.1348)

A number of inlays of elephant ivory or more probably hippopotamus tooth were recovered from what appear to be multiple objects. Some of the fragments consist of narrow strips ranging in width from .42–.8 cm and in preserved length from 1–4.7 cm; wider strips were about 1.45 cm wide and have preserved lengths of 2–3.7 cm. Parts of two corner pieces were found, one of which has a drill hole, along with rectangular pieces of ivory and fragments of other pieces whose original shape could not be established. Most interesting are a number of small flat pieces that were cut into recognizable hieroglyphs with details added in black. Included among these are a face in profile, a tree, two hands, part of a sign with water, a *kheker*, a *t*-sign, parts of three *su*-plants, and a *mr*-sign. Other fragments have remains of black and red markings, but it is no longer possible to identify what they represented. Part of the top of a *djed*-pillar was also found, but because this piece is much more three-dimensional than the other hieroglyphs, it probably originates from another object.[4]

Faience Inlays (1994.1349)

Pieces of faience plaques were discovered that have the outlines of *djed*-pillars remaining on the surface. The pillars must have been rendered in another material, perhaps gold foil, and traces of an adhesive or the material itself has left an imprint on the surface of the faience. One complete plaque was 11.5 cm long, 2.5 cm wide, and .19 cm thick. A piece of a 3 cm wide plaque with traces of the bottom of a *djed*-pillar on its surface indicates that some plaques were wider. Some tiny faience rectangles and squares, which may have belonged to the same object as the larger pieces, preserve remains of the fine, light-colored wood object to which they were originally attached. The faience inlays may have adorned a box or another piece of furniture.

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[2] Another example of painted rock crystal was found among the jewelry of Khnumet (De Morgan, *Dahchour* II, p. 67, no. 62, pl. 12; Cyril Aldred, *Jewels of the Pharaohs* [London, 1971], p. 187, pl. 29; Carol Andrews, *Ancient Egyptian Jewelry* [New York, 1991], p. 88, fig. 64; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* [Ithaca, New York, 1999], p. 108, pl. 214).

[3] The so-called ceremonial chair found in the tomb of Tutankhamun has gold circles attached to the chair back by means of gold-tipped nails inserted in the center (Howard Carter, *The Tomb of Tut-ankh-amen*, vol. III [London, 1933], pp. 111–13, pl. 33; Nicholas Reeves, *The Complete Tutankhamun* [London, 1990], p. 186; Francesco Tiradritti, "Tutankhamun: His Life and Treasures," in *Egyptian Treasures from the Egyptian Museum in Cairo*, ed. Francesco Tiradritti [Vercelli, 1998], p. 218; Kamal El Mallakh and Arnold C. Brackman, *The Gold of Tutankhamun* [New York, 1978], pl. 121).

[4] *Djed*-pillar inlays were found among the remains of a box belonging to Sithathoryunet (Brunton, *Lahun* I, p. 38, pl. 12; H. E. Winlock, *The Treasure of El Lahun* [New York, 1934], pp. 12–17, pl. 1B). Sithathoryunet also had ivory plaques with inscriptions that were inlaid into a box (Brunton, *Lahun* I, pl. 11; H. E. Winlock, *The Treasure of El Lahun* [New York, 1934], pp. 12–17, pl. 1B).

Metal Hieroglyphs on Wood (1994.1376)

Four groups of extremely fragile metal hieroglyphs that still adhered to splinters of wood were preserved. The phrases indicate that the text included the titles and epithets associated with the queen. One piece preserves most of a *sa*-sign. Another has the tail of the *sa*-goose followed by the phrase *ḫnt-t3wy*. The other two pieces both have the seated child sign, followed by a *t*-sign, which could designate the word *šri* (p. 118).

Dimensions: 1.2–1.9 x 2.3–3.1 cm

Furniture Attachments

Careful study of the remains of metal attachments that must originate from pieces of furniture and boxes should reveal additional details about the objects that were deposited in Queen Weret II's south tomb.[5] Among the pieces found were a slightly bent rectangular connecting bar (L. 2.9 cm; W. 1 cm) with parts of four nails remaining on the short ends; the bar was probably used to join together two pieces of wood, perhaps at the bottom of a box. A similar, smaller piece with two nails was also found (L. 1.7 cm; W. .5 cm). A conical piece with a hole in the center served an unknown purpose (original Diam. 1.85 cm; H. .6 cm). Another unusual object has an irregular, roughly circular shape and a rectangle cut into the center; the edges of the rectangle form a low-raised lip on one side of the piece. A brownish material adheres to one side of the object (preserved L. 2.7 cm; W. 2.7 cm). An oval object has two rounded lumps at one end, which are probably the corroded ends of the twisted wires that close the loop. The piece is cartouche-shaped, but it seems too small to have accommodated the hieroglyphs of a royal name, and instead it may have been a handle (H. 2.3 cm; W. 1.5 cm). Several partially preserved U-shaped objects were found that are probably "staples" originally attached to the side of a wood object. A small hook was also recovered (L. 3.1 cm; W. 1.1 cm). An L-shaped bracket was found that must originate from the underside of a table or chair (L. 8 cm; W. 4.3 cm).

Jewelry Deposit

(fig. 26; pl. 64d)

On November 6, 1994, a 68 cm high and 85 cm wide entrance was discovered at floor level in the center of the east wall of the shaft that leads to the burial apartments of Queen Weret II. The opening was concealed by a mud coating that covered the brick fill of a small, slightly sloping passage 1.58 m long. The narrow gap between the top course of brick and the ceiling was filled with flat limestone chips. At the east end of the north wall, a 53 cm wide side niche was found sealed by two limestone slabs, a lower one lying flat and covering a small pit and another standing on it.[6] Gypsum was used to carefully cement both in place. After the removal of the stones, a 60 cm deep pit appeared, filled to its rim with soil.

About 6,500 beads and fifty single elements were found completely mixed with the soil in such a disorganized manner that was impossible to glean any clues as to the original arrangement of the objects.[7] All strings had completely decayed, though a few scraps remained inside the beads and other elements. No identifiable remains of a box or any other receptacle were found,[8] though it is possible that the objects were placed in a bag or another container made of a highly perishable material that vanished without a trace. If the jewelry had been laid in a disorganized fashion inside a bag or some other soft-sided container that later deteriorated, this might account for the seemingly random manner in which the beads and elements were found. It is also possible that the jewelry was deposited directly in the soil, though it is difficult to imagine why precious objects would be treated so carelessly. In the intermingling of jewelry and soil one might see a parallel to other instances of the use of earth as part of an unknown funerary custom (p. 112).

Although the objects had remained untouched since they were deposited, it is uncertain that the jewelry was originally buried in this location. Instead, it is possible that the jewelry was originally placed in the pit at the end of the west corridor of the south tomb (pp. 77–79; fig. 23), apparently in a white-painted box that fit exactly into the pit. When building activity was renewed there, the deposit may have been found accidentally, rotted by humidity or otherwise damaged, and a part of it may have been stolen.[9] In such a scenario, the objects would have been saved by the ancient authorities and, probably because of the disorder caused by the alteration of the south tomb, reburied in the east niche. The collection was not noticed by the tomb robbers because it was placed in an unusual location and because the thieves did not completely empty the shaft, leaving the brick niche buried under the fill at its bottom.

The following elements were discovered.

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[5] The author would like to thank Geoffrey Killen for his comments about the metal attachments.

[6] The lower block measured 14 x 23 x 55–60 cm, the upper one 14–18 x 50–51 x 57 cm.

[7] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1994–1995," *Orientalia* 65 (1996): p. 280; Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1995–1996," *Orientalia* 66 (1997): p. 272, figs. 29–30.

[8] A few small splinters of wood were found, but the remains seem too scanty to account for even a badly decayed box. In order not to lose any beads, the excavators removed the soil from the pit and sieved it. The reconstruction work was carried out by the conservators of the Egyptian Museum, Cairo, based partly on advice from the excavators, see Oppenheim, "First Look," pp. 10–11; idem, "Jewellery," p. 26; idem, "Treasures," pp. 141, 146–47. The objects are all displayed in the jewelry gallery on the second floor of the Egyptian Museum.

[9] It is notable, for example, that the jewelry deposit did not contain a pectoral, an element that one would expect among the funerary goods of a high-ranking royal woman of the later Middle Kingdom. However, remains of beads found in Queen Weret II's north tomb confirm that other jewelry was included in her funeral outfit and one or more pectorals may have been placed elsewhere.

Objects	*Quantity*	*Accession Numbers*	*Materials*	*Dimensions*
Djed-pillar clasps	2	JdE 98785AB Exc. no. 1994.1086/1–2	Gold, carnelian, lapis lazuli, turquoise	1) H. 4.11 cm; W. 1.96 cm 2) H. 4.09 cm; W. 1.95 cm
Bracelet spacers	10	Exc. no. 1994.1087/1–10	Gold	average H. 4.07 cm; W. .53 cm
Claw-shaped pendants	2	Exc. no. 1994.1080/1–2	Gold, carnelian, lapis lazuli, turquoise	1) H. 2.14 cm; W. 1.49 cm 2) H. 2.13 cm; W. 1.52 cm
Anklet spacers	16	Exc. no. 1994.1089/1–16	Gold	average H. 3.79 cm; W. .58 cm
Anklet clasps	2	Exc. no. 1994.1088/1–2	Gold	1) H. 3.82 cm; total W. .88 cm 2) H. 3.87 cm; total W. .85 cm
Cowrie shells	7	JdE 98787 Exc. no. 1994.1083/1–7	Gold	average L. 2.58 cm; W. 1.67 cm; Th. .89 cm
Motto clasp	1	JdE 98783 Exc. no. 1994.1084	Gold, carnelian lapis lazuli, turquoise	H. 1.66 cm; W. top 1.63 cm; W. bottom 1.74 cm
Recumbent lion amulets	2	Exc. no. 1994.1081/1–2	Gold	1) L. 1.77 cm; W. .76 cm; H. .93 cm 2) L. 1.76 cm; W. .76 cm; H. .89 cm
Reef-knot amulets	2	JdE 98782AB Exc. no. 1994.1085/1–2	Faience	1) H. 2.04 cm; W. .55 cm 2) H. .92 cm; W. .54 cm
Reef-knot clasps	3	Exc. no. 1994.1082/1–3	Gold	1) L. 1.57 cm; max. W. 1.4 cm; Th. .75 cm 2) L. 1.38 cm; max. W. .93 cm; Th. .58 cm 3) L. 1.40 cm; max. W. .91 cm; Th. .57 cm
Scarabs	2	JdE 98778AB Exc. no. 1994.1078/1–2	Amethyst	1) L. 2.57 cm; W. 1.64 cm; H. 1.17 cm 2) L. 2.56 cm; W. 1.64 cm; H. 1.19 cm
Scarab	1	JdE 98779 Exc. no. 1994.1079	Turquoise	L. 1.04 cm; W. .70 cm; H. .50 cm
				Average Dimensions
Small ball beads	ca. 2,116	JdE 98790D Exc. no. 1994.1090/1	Carnelian	L. .17 cm; W. .18 cm
	ca. 1,966+ 60 broken pieces	JdE 98792D Exc. no. 1994.1090/3	Lapis lazuli	L. .19 cm; W. .19 cm
	ca. 2,012	JdE 98793D Exc. no. 1994.1090/2	Turquoise	L. .18 cm; W. .18 cm
Medium ball beads	60	JdE 98791B Exc. no. 1994.1073/1	Gold	L. .33 cm; Diam. .35 cm
	64	JdE 98790B Exc. no. 1994.1072/1	Carnelian	L. .35 cm; Diam. .37 cm
	59	JdE 98792B Exc. no. 1994.1074/1	Lapis lazuli	L. .34 cm; Diam. .37 cm
	63	JdE 98793B Exc. no. 1994.1075/1	Turquoise	L. .30 cm; Diam. .35 cm
Large ball beads	64	JdE 98791A Exc. no. 1994.1073/2	Gold	L. .54 cm; Diam. .59 cm
	68	JdE 98790A Exc. no. 1994.1072/2	Carnelian	L. .54 cm; Diam. .60 cm
	64	JdE 98792A Exc. no. 1994.1074/2	Lapis lazuli	L. .54 cm; Diam. .60 cm
	80	JdE 98793A Exc. no. 1994.1075/2	Turquoise	L. .48 cm; Diam. .58 cm
	1	JdE 98794 Exc. no. 1994.1076	Amethyst	L. .47 cm; Diam. .53 cm
Drop beads	22	JdE 98791C Exc. no. 1994.1077/1	Gold	L. .90 cm; max. Diam. .32 cm
	14	JdE 98790C Exc. no. 1994.1077/3	Carnelian	L. .91 cm; max. Diam. .35 cm
	16	JdE 98792C Exc. no. 1994.1077/4	Lapis lazuli	L. .89 cm; max. Diam. .34 cm
	16	JdE 98793C Exc. no. 1994.1077/2	Turquoise	L. .89 cm; max. Diam. .33 cm

The elements have been restored to complete pieces of jewelry and are exhibited in the Egyptian Museum, Cairo, along with the Middle Kingdom jewelry found by De Morgan's excavation. The dimensions of the reconstructed pieces are taken from Oppenheim, "Treasures," pp. 146–47 and were provided by the editor of that book; the excavators have been unable to check these measurements.

The difficulties of reconstructing Middle Kingdom jewelry are numerous and too complex to investigate here, though a detailed discussion of these issues is badly needed. In part, many unanswered questions remain because of De Morgan's hasty excavation of the four treasures found at Dahshur and the omission in his published reports of any information about the positions in which the various elements were found.[10] In addition, De Morgan does not seem to have carefully collected the masses of small beads that originally must have been part of such items as the bracelets and anklets.[11] One result is that some of the bracelet and anklet spacers now on display in the Egyptian Museum are strung together without the proper intervals of beads.[12]

An important issue that has not received sufficient attention in the discussions of Middle Kingdom jewelry is the possibility that included in the jewel boxes of royal women were loose items that were no longer associated with their original objects; such miscellaneous elements could have belonged to pieces of jewelry that had been broken or lost, had been remodeled to accommodate changes in fashion, or were the remains of heirlooms.[13] The reconstructions of Queen Weret II's jewelry incorporate all the elements that were found in the treasure, except for the three scarabs, which probably originally belonged to rings and are now exhibited as independent objects. However, there is no proof that these elements originally formed a closed set of complete objects, and the uneven number of beads actually may be an indication that they did not. Some evidence that the pieces had been altered prior to their burial is provided by the scarabs, which clearly once had shanks that were subsequently removed. While many of the reconstructions of Queen Weret II's jewels fit securely with our best understanding of Middle Kingdom jewelry, other objects are more unusual and were perhaps buried without the elements with which they were originally associated.

Two *Djed*-Pillar Bracelets

Bibliography: Oppenheim, "First Look," color photo p. 11 (one clasp and five spacers before restringing); idem, "Jewellery," color photo p. 26 (reconstruction); idem, "Treasures," color photo p. 138 (reconstruction, wrongly identified in some editions of the book as "Bracelet of Queen Nofret")

The *djed*-pillar clasps found in the tomb of Weret II have a unique and particularly beautiful arrangement of inlays. Each tier of the pillars has an upward-pointing carnelian triangle in the center surrounded on either side by angled bars of turquoise; at the outer edges are narrow triangles of lapis lazuli. The triangles in the centers of the pillars echo the upward sweep of the hieroglyphs and counter the strong horizontals of the bars, providing each small clasp with a geometrically balanced composition. At the necks of the pillars are gold bands with four chased horizontal lines, which are repeated on the back. Sliding clasps with tongue-and-groove locking mechanisms and twenty-two string holes are placed on each side of the pillars. The tongue sections of the clasps are soldered to the *djed*-pillars and form vertical frames on either side, while the groove sections are wider and are curved at the top and bottom. The spacers are composed of tiny gold barrel beads that were soldered together in rows three beads wide and twenty-two beads high.[14]

Each bracelet is composed of a *djed*-pillar clasp, five bracelet spacers, and less than one-quarter of the tiny carnelian, lapis lazuli, and turquoise beads. Bracelets with *djed*-pillar clasps were found in the tombs of Sithathor and Ita at Dahshur.[15] In keeping with depictions of wide bracelets in painting and relief, as well as New Kingdom bracelets that survive with their original stringing intact,[16] the pieces were reconstructed with beads of a single material between each spacer (turquoise-carnelian-lapis lazuli); sections of each bead type occur twice on each bracelet.

Dimensions: L. 15.5 cm

Two Claw-Pendant Anklets

Bibliography: Oppenheim, "Treasures," color photo pp. 146–47 (reconstruction)

The claw pendants have narrow horizontal stripes of turquoise-carnelian-turquoise at the top. Long, curving pieces of carnelian that follow the sweeping, tapering shapes of the claws were placed in the centers of the lower sections, surrounded on either side by alternating pieces of lapis lazuli and turquoise; the tips of the claws have lapis lazuli inlays, as do the rounded projections on the sides. At the tops of the claws are small gold barrel beads from which the pendants were suspended. The tops of the sides and the back of each claw are covered with five horizontal chased lines.

Each anklet has a plain gold clasp with rounded, narrow ends, a tongue-and-groove locking mechanism, and twenty-two string holes. The spacers are similar to those that belong to the bracelets, but are composed of rows three beads wide and twenty beads high; one spacer was found broken in two pieces. In order to accommodate the gold beads at the tops of the claws, two of the spacers had beads omitted from the center of one short end.

Each of Queen Weret II's anklets is reconstructed with an anklet clasp, eight anklet spacers, a claw pendant, and more than one-quarter of the tiny carnelian, lapis lazuli, and turquoise beads. As was the case with the *djed*-pillar bracelets, beads of a single material were placed between each spacer in alternating bands of turquoise-carnelian-lapis lazuli; each material is repeated three times on each anklet. Many examples of claw pendants are known, including those found by De Morgan at Dahshur in the tombs of Sithathor, Mereret, and Khnumet, and by Petrie and Brunton in the tomb of Sithathoryunet.[17] A depiction of acrobats or dancing girls in the Twelfth Dynasty tomb of Wahka B in Qau el-Kebir is the only known preserved depiction of claw anklets in Egyptian art.[18]

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[10] For a comprehensive bibliography of the jewelry found by De Morgan at Dahshur, see PM III2, pp. 883–84.

[11] The problems associated with De Morgan's work have been noted by Carol Andrews, *Ancient Egyptian Jewelry* (New York, 1991), pp. 16, 18; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* (Ithaca, New York, 1999), p. 102; Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), pp. 10, 179–81.

[12] An example can be seen in Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), pl. 12.

[13] In their publications of the tomb of Sithathoryunet, Brunton (*Lahun* I, pp. 42–43) and Winlock (*The Treasure of El Lahun* [New York, 1934], p. 54) briefly consider the question of loose pieces.

[14] For a list of Middle Kingdom and early New Kingdom spacers see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), p. 96.

[15] De Morgan, *Dahchour* I, p. 60, no. 2, pls. 15–16; De Morgan, *Dahchour* II, p. 53, no. 9, pl. 5; Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), p. 190, pl. 34. For a discussion of Middle Kingdom inlaid clasps, see Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), p. 63, pls. V, VIBC.

[16] Such as those belonging to Queen Ahhotep (Mohamed Saleh and Hourig Sourouzian, *The Egyptian Museum Cairo* [Mainz, 1987], no. 125; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* [Ithaca, New York, 1999], pp. 132–34), which were strung with wires that did not deteriorate.

Dimensions: L. 21.5 cm

Two Bracelets with Lion Amulets

Bibliography: Oppenheim, "First Look," color photo p. 10 (both lions before reconstruction); idem, "Jewellery," color photo p. 26 (one lion before reconstruction); idem, "Treasures," color photo p. 146 (reconstruction)

The two lions found in the jewelry deposit of Queen Weret II are notable for their extremely fine detail and the skill with which they were rendered. Both lions are seated but alert, with their heads and ears erect and their paws stretched out in front. Their tails are looped around the proper right haunch. The lions sit on gold base plates that are squared off in the front and rounded at the back. Single string holes were placed at the bottom of the chest between the paws and at the base of the tail. Despite their small size, extensive details were chased onto the surfaces, including the fur of the manes and ears, the musculature of the legs, the whiskers, and the claws. The carefully modeled faces are similar but not identical and have expressions that are benign and friendly, rather than fierce and threatening.

The two smaller reef-knot clasps are hollow and have tongue-and-groove locking mechanisms.[19] Each half of the clasp has two string holes at one end, which are placed so that the strings appear to emerge logically from the ends of the knot. The surfaces are covered with fine chased lines that imitate the strands of twisted thread.

The lion bracelets are composed of the lion amulets, some of the medium ball beads, and the two smaller reef-knot clasps. One problem with using these elements in the reconstruction is that each of Weret II's lions has only a single string hole,[20] while the reef-knot clasps have double string holes. Although some reconstructions of Middle Kingdom jewelry resolve this problem by using two strings and separating them just before the knot,[21] this solution is not entirely satisfactory, since one would assume that the double string holes in the knot had a function. In the reconstruction of Weret II's lion bracelets, single gold beads are placed directly in front of and behind the lions. The strings are then separated and followed by two pairs of gold beads, which in turn are followed on either side of the lion by groups of three pairs of beads in the arrangement turquoise-carnelian-lapis lazuli-gold-turquoise-carnelian-lapis lazuli.

Lion amulets have been found both in tombs of the royal family and those of private individuals,[22] but they are never depicted in Egyptian art. It is uncertain exactly how they were worn, though it is believed that they generally belonged to bracelets[23] and were strung as a pair on an individual bracelet. Unfortunately, the exact position of the lion amulets and the surrounding elements that were found on bodies have not been carefully recorded,[24] making it difficult to answer such questions as what type of bracelet the lions belonged to, whether they faced each other or were back-to-back, and whether they always occurred in pairs on a single bracelet or were strung singly on different bracelets. In the case of the bracelets that belonged to Weret II, the discovery of only two lions, the presence of two identical reef-knot clasps, and the large quantity of medium ball beads in the deposit suggest that the lions belonged to separate bracelets. The arrangement of beads is highly hypothetical. One must also consider the possibility that the long double strings had single large beads with both strings threaded through them between the lions and the clasp; such beads would have kept the strands from flopping outward when the bracelet was worn.

Dimensions: L. 15 cm

Bracelet with Reef-Knot Amulets

Bibliography: Unpublished

Unlike the other paired elements of jewelry found in the treasure of Queen Weret II, which are rendered in a similar fashion, the reef-knot amulets are not identical. While the actual knots are of roughly the same length, the larger amulet has long sections representing the strings on either side of the knot, while the shorter one terminates with the ends of the knot. The larger amulet has a single string hole running through its length, while the shorter one is pierced in the center.

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[17] Sithathor: De Morgan, *Dahchour* I, p. 62, no. 23, pl. 17; Mereret: De Morgan, *Dahchour* I, p. 67, no. 20, pl. 22; Khnumet: De Morgan, *Dahchour* II, p. 59, no. 11, pl. 5; Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), pp. 180–81, pl. 12; Sithathoryunet: Brunton, *Lahun* I, p. 32, pl. 8 [originally reconstructed as a necklace]; H. E. Winlock, *The Treasure of El Lahun* (New York, 1934), pp. 34–36, pl. 9; Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), p. 192, pl. 36. For a general discussion of Middle Kingdom claw anklets, see Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), pp. 61–62, pls. IIIF, IV. For a list of claw amulets, see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), p. 95.

[18] Flinders Petrie, *Antaeopolis: The Tombs of Qau*, Publications of the Egyptian Research Account and British School of Archaeology in Egypt, vol. 51 (London, 1930), pl. 24; Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), p. 160, fig. 37.

[19] For a list of reef-knot clasps, see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), p. 96.

[20] Some lion amulets have two string holes through their base plates, including those of Sithathor (Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], pl. 24); and Sithathoryunet (Brunton, *Lahun* I, pl. 3; Alix Wilkinson, *Ancient Egyptian Jewellery* [London, 1971], pl. VIA).

[21] For example, Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), pls. 12, 44; Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), pl. VIA; Brunton, *Lahun* I, pl. 2.

[22] Royal women who possessed lion amulets include Sithathor at Dahshur (De Morgan, *Dahchour* I, p. 61, no. 12, fig. 130, pl. 17), Mereret at Dahshur (De Morgan, *Dahchour* I, p. 66, no. 19, pl. 24; Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], p. 195, pl. 44), and Sithathoryunet at Lahun (Brunton, *Lahun* I, pp. 32–33, pls. 2–3; H. E. Winlock, *The Treasure of El Lahun* [New York, 1934], pp. 50–52, pl. 12). For a discussion of lion bracelets, see Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), p. 64. For a list of lion amulets, see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), p. 91.

[23] However, a pair of lions found in Buhen were reconstructed as the end pieces of necklace (D. Randall-MacIver and C. Leonard Woolley, *Buhen*, Eckley B. Coxe Junior Expedition to Nubia, vol. 8 [Philadelphia, 1911], pp. 200–1, frontispiece, pl. 74).

[24] A pair of lion amulets found at Kôm el-Hisn were recorded, "On the chest and at the pelvis were six gold amulets of fine work representing two recumbent lions, one vulture, one ibis, a sacred eye and a cobra." (A. Hamada and Sh. Farid, "Excavations at Kôm el-Hisn Season 1945," *ASAE* 46 [1947]: p. 205, pl. LVIII). Another pair found in the Teti pyramid cemetery at Saqqara is described as being, "At wrists: Two small gold couchant lions with green felspar and lapis lazuli beads. The lions may have been the centre ornament of the bracelet." (Cecil M. Firth and Battiscombe Gunn, *Teti Pyramid Cemeteries* [Cairo, 1926], vol. I, text, p. 59, vol. II, plates, pl. 37AB.)

The reef-knot bracelet has been reconstructed in the Egyptian Museum with the reef-knot amulets, the larger reef-knot clasp, which is constructed in the same manner as the smaller ones used in the lion bracelets, some of the medium ball beads, and the large amethyst ball bead.[25] The overall arrangement of the beads and elements is symmetrical and is centered on the single large amethyst ball bead, surrounded on either side by pairs of medium gold, turquoise, and carnelian ball beads in groups of two. These in turn are followed by the large knot on one side and the small knot on the other side. On the other side of the knots are pairs of gold, turquoise, carnelian, and lapis lazuli beads, again in groups of two. The arrangement terminates with single lapis lazuli beads that bring together the two strings, which then must be improbably resplit to fill the double string holes of the reef-knot clasp. The bracelet reconstruction seems to incorporate whatever beads were left over after the other objects had been strung. One result is that there were not enough turquoise beads, and a lapis lazuli bead was substituted for one of the turquoise. This discrepancy in the arrangement of the beads is an indication that there must be flaws not only in the reef-knot bracelet, but also in other reconstructions.

Reef-knot amulets of this type are unusual, and it is therefore uncertain how this pair was worn and what type of object or objects they might have belonged to. Wire bracelets twisted into reef knots are known, so it is possible that the amulets did belong to a bracelet.[26] The medium ball beads roughly correspond to the size of the amulets, but the central placement of the amethyst bead is highly speculative, as is the use of the larger reef-knot clasp. It is possible that the amulets were placed in the deposit as independent elements with a magical function[27] or that they were placed alone on simple strings.

Motto-Clasp Necklace

Bibliography: Oppenheim, "Jewellery," color photo p. 26 (clasp only); idem, "Treasures," color photo p. 146 (reconstruction); Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan 1993–1994," *Orientalia* 64 (1995): p. 22, pl. 20, fig. 30

The tiny motto clasp is a small masterpiece of the Egyptian jeweler's art. Four hieroglyphs are arranged to form the phrase "the heart(s) of the two gods are content," a reference to the reconciliation of Horus and Seth. The sides and top of the perfectly balanced square composition are formed by two inward-facing *netjer*-signs, while the bottom is composed of a *hetep*-sign, the top of which extends into the center of the rectangle. Above the top of the *hetep* and below the point at which the *netjers* join is an *ib*-sign. The *netjer*-signs are inlaid with long, narrow stripes of lapis lazuli-turquoise-lapis lazuli in the flag section and alternating squares of the same materials in the pole. The *hetep*-sign has small squares of turquoise at the outer ends and in the center of the base and two long, narrow stripes of carnelian between the squares. The top of the *hetep* is inlaid with two pieces of turquoise separated by a lapis lazuli crescent. The *ib*-sign has small inlays of carnelian at the top and of lapis lazuli in the projections on either side. The center of the sign has an oval piece of turquoise into which a tiny crescent and circle of carnelian have been inset; only one parallel for such a treatment of an *ib*-sign is known.[28]

The back of the motto clasp is covered with an extremely intricate pattern of chased decoration. The flags and tops of the poles of the *netjer*-signs are filled with horizontal lines, while the bottoms of the poles have alternating double horizontal lines with double diagonal lines between them. The chased decoration on the *hetep*-sign corresponds to the inlays found on the front of the pendant: chased vertical lines are found in the sections occupied by the turquoise squares, horizontal lines fill the areas that correspond to the carnelian bars, and the top of the *hetep*-sign features two lines corresponding to the lapis lazuli crescent. The *ib*-sign has horizontal lines at the top and diagonal lines running the length of the two side projections; cross-hatching is found in the crescent and the circle. The pendant was secured by means of a sliding tongue-and-groove clasp, the left side of which was soldered to the back of the pendant and must cover some of the chased decoration. The right side of the clasp can be completely removed. The care lavished on the chased decoration is particularly remarkable when one considers that only the queen would have seen these details as she donned and removed her jewelry. The top of each side of the clasp has a tubular string hole that is wider on the inner side and narrower on the outer side; the tubes would have held and concealed the knotted threads.

The motto-clasp necklace has been reconstructed with the motto-clasp pendant and all the drop beads. The beads are generally arranged in a pattern of alternating gold-lapis lazuli-carnelian-turquoise, but since equal numbers of the beads were not found, the pattern has been varied. Drop beads on necklaces are often interspersed with ball beads, but in this case, since all the drop beads were used for the necklace, the addition of ball beads would have made the piece too long. Motto clasps that form the same phrase were found in the tombs of Sithathor and Mereret at Dahshur, and Sithathoryunet at Lahun.[29]

Since motto clasps have never been found on a body and since there do not seem to be any definitive representations of them in Middle Kingdom art, it is uncertain how they were worn. It has been suggested that they adorned the arms or that they served as the small pendants of necklaces or as their clasps.[30] A consideration of the function of these pieces as clasps and evidence from the New Kingdom suggests that these fasteners may have served to secure necklaces. The present reconstructions of Middle Kingdom pectoral necklaces lack clasps and seem to assume that the wearer simply slipped them over the head, a potentially difficult task given the voluminous wigs worn by ancient Egyptian women.[31] In contrast, preserved New Kingdom pectoral necklaces and the depictions of them include clasps.[32] The motto clasps of the Middle Kingdom could have served as fasteners for necklaces with pectorals as well as strings of beads.[33] Weret II's motto clasp might therefore have served as a fastener at the back of a simple strand of drop beads, as it has been reconstructed, or it could have been part of necklace with a pectoral that was either removed or stolen in ancient times.

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[25] For a list of amethyst beads in Twelfth Dynasty tombs, see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), pp. 95–96.

[26] For examples, see Carol Andrews, *Ancient Egyptian Jewelry* (New York, 1991), fig. 77 center.

[27] Gold bands with reef knots in the center were placed on the mummy of Tutankhamun (Nicholas Reeves, *The Complete Tutankhamun* [London, 1990], p. 113 upper right corner; Howard Carter, *The Tomb of Tut-ankh-amen*, vol. II [London, 1927], p. 122, pl. LXXXIII).

[28] From the tomb of Khnumet at Dahshur (De Morgan, *Dahchour* II, p. 63, no. 30, pl. 5; Cyril Aldred, *Jewels of the Pharaohs* [London, 1971], p. 188, pl. 31; Carol Andrews, *Ancient Egyptian Jewelry* [New York, 1991], p. 17, fig. 9; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* [Ithaca, New York, 1999], p. 105, pl. 210).

[29] De Morgan, *Dahchour* I, p. 60, no. 4, pls. 15–16, 19, p. 68, no. 31, pl. 19; Cyril Aldred, *Jewels of the Pharaohs* (London, 1971), pp. 190, 195, pls. 34, 44; Brunton, *Lahun* I, p. 34, pl. 3; H. E. Winlock, *The Treasure of El Lahun* (New York, 1934), pp. 52–54, pl. 13.

Dimensions: L. 62.9 cm

Cowrie-Shell Girdle

Bibliography: Oppenheim, "First Look," color photo p. 11 (shells before reconstruction)

Each cowrie shell has a narrow, evenly curved bottom section and a broader top section with a rounded point closer to one end. The shells are hollow but lack the pellets or small stones that would have made a tinkling sound when the wearer moved; such pellets are found in other girdles. Each shell has a narrow, slightly curved opening that runs completely through the shell.[34] On either side of the opening are wide, deeply cut incisions that replicate features found on actual shells. Each narrow end is pierced by two string holes.

Weret II's cowrie-shell girdle is composed of the seven cowrie shells and all the large carnelian, turquoise, lapis lazuli, and gold ball beads. Cowrie-shell girdles are often included on the small, so-called concubine figurines made during the Middle Kingdom, where they are worn low on the hips by young women who may be adorned with other elements of jewelry or tattoos, but are otherwise nude.[35] The shape of the cowrie shell is extremely suggestive of female genitalia, and the girdles must have been seen as both erotic garments and magical aids to fertility. Cowrie-shell girdles have been found in the tombs of women of the royal family[36] and private individuals. Generally, one of the shells on such girdles is fitted with a tongue-and-groove clasp, but none of Weret II's shells served this function. There are several possible reasons for this omission. First, it is possible that the clasp shell was removed or was broken before the jewelry was deposited. Second, the larger reef-knot clasp, which has been placed in the reef-knot bracelet reconstruction, may have belonged to the girdle, though the knot clasp is noticeably smaller than the shells. Finally, the girdle may have been tied only with strings.

In the present reconstruction, four different types of large ball beads (carnelian, turquoise, gold, lapis lazuli) have been placed between each shell. However, since a varying number of beads of each material were found, the groups of each bead type are not equal. Cowrie-shell girdles strung with acacia beads have multiple colors between each shell, as has been done with Weret II's girdle. It is also possible that this girdle should have only a single type of bead between each shell.

Two Inscribed Scarabs

Bibliography: Oppenheim, "First Look," color photo p. 11 (undersides of both scarabs); idem, "Jewellery," color photo p. 26 (undersides of both scarabs); idem, "Treasures," color photo p. 147 (underside of Amenemhat, top of Nubkaure); Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1993–1994," *Orientalia* 64 (1995): p. 22, pl. 20, fig. 29

The amethyst scarabs are nearly identical.[37] One is inscribed "the perfect god Amenemhat," the other "the perfect god Nubkaure." The names of the king are surrounded on either side by a coil pattern that ends in the head and tail of a snake. While coil patterns are commonly found on scarabs, the transformation of this design into a pair of snakes has few parallels.[38] The backs are gently rounded, with fine incised double lines indicating the prothorax and the wing cases. The eyes are small, distinct, and well rounded, while the points of the clypeus are clearly delineated.

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[30] The idea that motto clasps were worn on the arms is followed by Cyril Aldred (*Jewels of the Pharaohs* [New York, 1971], pp. 158, 188, pl. 31) and H. E. Winlock (*The Treasure of El Lahun* [New York, 1934], p. 53), who rejects the idea that the clasps served to fasten necklaces because they would have been hidden by a woman's hair. The possibility that they were pendants is suggested by Alix Wilkinson (*Ancient Egyptian Jewellry* [London, 1971], pp. 57–60, pl. IIIAB with a list of motto clasps). Hans Wolfgang Müller and Eberhard Thiem (*Gold of the Pharaohs* [Ithaca, New York, 1999], p. 105, pls. 208–11) mention both possibilities but objects that include the motto clasps have the caption "charm bracelets." Brunton and Petrie (*Lahun* I, p. 34) favored the idea that they were worn on the arm but did not rule out the possibility that they fastened strings at the backs of collars.

[31] Cyril Aldred, *Jewels of the Pharaohs* (New York, 1971), pls. 33, 41, 42.

[32] Examples include a necklace offered to Amenhotep III in the tomb of Kheruef (The Epigraphic Survey, *The Tomb of Kheruef: Theban Tomb 192*, University of Chicago Oriental Institute Publications, vol. 102 [Chicago, 1980], pl. 47); the back of a necklace on a statue of Princess Isis (Arielle P. Kozloff and Betsy M. Bryan with Lawrence M. Berman, *Egypt's Dazzling Sun: Amenhotep III and His World*, exh. cat. [Cleveland, 1992], p. 206, no. 24); a necklace worn by Osiris in the early Ramesside tomb of Userhat (Norman de Garis Davies, *Two Ramesside Tombs at Thebes*, Publications of The Metropolitan Museum of Art Egyptian Expedition, Robb de Peyster Tytus Memorial Series, vol. 5 [New York, 1927], pl. 5, upper left). Examples of preserved necklaces with fasteners that bear a resemblance to motto clasps include several found in the tomb of Tutankhamun (Howard Carter, *The Tomb of Tut-ankh-amen*, vol. II [London, 1927], pl. 84; vol. III [London, 1933], pl. 19A, C; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* [Ithaca, New York, 1999], pp. 11, 178–80; Kamal El Mallakh and Arnold C. Brackman, *The Gold of Tutankhamun* [New York, 1978], pls. 94–96).

[33] The necklace with ball-bead pendants from the tomb of Mereret was strung with a motto clasp (Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], pl. 44; Carol Andrews, *Ancient Egyptian Jewelry* [New York, 1991], p. 125, fig. 108).

[34] For open and closed cowrie shells, see Biri Fay, *Altägyptischer Goldschmuck/Ancient Egyptian Jewelry* (Berlin, 1990), pp. 54–58.

[35] For examples of depictions of girdles, see Mohamed Saleh and Hourig Sourouzian, *The Egyptian Museum Cairo* (Mainz, 1987), no. 80; James Henry Breasted, Jr., *Egyptian Servant Statues* (New York, 1948), pls. 89bc, 90b; Janine Bourriau, *Pharaohs and Mortals: Egyptian Art in the Middle Kingdom*, exh. cat. (Cambridge, 1988), p. 139, no. 140.

[36] Royal examples come from the tombs of Sithathor at Dahshur (De Morgan, *Dahchour* I, p. 60, no. 5, pl. 17; Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], p. 190, pl. 33); Mereret at Dahshur (De Morgan, *Dahchour* I, p. 65, no. 7, pl. 23, p. 66, no. 11, pl. 22; Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], p. 196, pl. 45); Sithathoryunet at Lahun (Brunton, *Lahun* I, pp. 30–31, pl. 3; H. E. Winlock, *The Treasure of El Lahun* [New York, 1934], pp. 37–41, pl. 8; Cyril Aldred, *Jewels of the Pharaohs* [New York, 1971], p. 191, pl. 35). For a general discussion of cowrie-shell girdles, see Alix Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), pp. 80–81, pl. XII. For a list of cowrie-shell girdles, see Carol A. R. Andrews, *Catalogue of Egyptian Antiquities in the British Museum*, vol. VI, *Jewelry I: From the Earliest Times to the Seventeenth Dynasty*, based on material collected by Alix Wilkinson (London, 1981), p. 94.

[37] The pair of amethyst scarabs and the blank turquoise scarab will be published in Daphna Ben-Tor, "Two Royal-Name Scarabs of Amenemhat II from Dahshur and the Initial Occurence of Royal-Name Scarabs," *MMJ*, forthcoming.

[38] One of these parallels was found in the tomb of Sithathor at Dahshur (De Morgan, *Dahchour* I, p. 62, no. 19, fig. 132).

The scarabs originally belonged to rings and were worn during the queen's lifetime. The gold caps that cover the openings at the front and back of the scarabs show clear wear marks that must have resulted from the friction of the gold wire shanks. In addition, the edges of the undersides are chipped, perhaps from the removal of gold foil borders. The reason for the removal of the shanks, which perhaps occurred when the scarabs were deposited with the queen's grave goods, is unknown.

Dimensions: See p. 128

Blank Scarab

Bibliography: Unpublished

The turquoise scarab is rendered with simple incised lines. Although the underside of the scarab is now undecorated, it is possible that an inscribed gold plaque was once attached, as was the case with a similar scarab found in queen's tomb 11 (p. 124). Holes for a gold wire shank were placed at the front and back of the scarab.

Dimensions: See p. 128

Relief Decoration of the King's Temples and Queens' Chapels

Ideally, the remains of an important monument such as the pyramid complex of Senwosret III should be examined simultaneously from all points of view, with the architecture, wall decoration, statuary, pottery, and small finds presented together. The practicalities of excavations, however, seldom allow a single, comprehensive publication. The excavation of the pyramid complex is ongoing, and the recovery and study of the relief fragments are far from complete. New pieces and new joints among the 18,000 fragments found so far will undoubtedly reveal additional details in the scenes and previously unrecognized iconographic themes. The conclusions reached here about the decorative programs, their arrangement, and their place within the temples and chapels are therefore tentative and based on the state of the project at the end of the 2000 season. The following preliminary report should serve to elucidate the basic framework of the decorative programs and their relationship to the architecture.

THE PYRAMID TEMPLE

In comparison with the grand pyramid temples of the Old Kingdom and early Twelfth Dynasty, which stood in both the inner and the outer pyramid courts, the pyramid temple of Senwosret III was a small structure contained completely within the inner pyramid court (for the architecture of the pyramid temple, see pp. 46–54; figs. 14–18a; pls. 31–37, 153–55). According to the iconographic themes found in the relief decoration, it seems to have had rooms corresponding to the inner sections of Old Kingdom pyramid temples.[39] Because the remains of the pyramid temple consist solely of its undifferentiated brick subfoundation and an enormous quantity of scattered relief and architectural fragments, our ideas about the interior spaces are derived from the types of scenes that are attested and a comparison with better-preserved pyramid temples. Recovered relief fragments show decisively that the temple had a room with depictions of deity processions, similar to the so-called square antechamber, and an offering chamber with the standard scenes of cattle slaughtering, offering bearers, piled offerings, offering lists, and the enthroned king before an offering table. Other fragments reveal the presence of ritual scenes depicting larger deities and the king, as well as scenes that include ships. Since these types of representations do not belong with the decorative program of either the antechamber or the offering chamber, they must originate from a third room that contained ritual scenes. A number of statue fragments attest to the existence of a fourth unit, a separate statue chamber, which could also have had relief decoration. Finally, a large group of inscriptions, identified by their distinct stylistic characteristics, come from the exterior walls of the temple. The decision to build such a modest pyramid temple with a limited iconographic program must be regarded as a conscious choice on the part of the builders, because there seems to have been adequate space around the pyramid to construct a large structure in the style of the Old Kingdom and early Twelfth Dynasty.

Theories concerning room arrangement (pp. 49–50; fig. 17) are based on comparisons with better-preserved pyramid temples. The visitor probably approached the statue chamber through an entrance on the center of the east side, perhaps after passing through a small entrance chamber. A storeroom may have been located to the north. Continuing to the south, the visitor would enter the room with the ritual scenes. A westward turn would bring a supplicant into the so-called square antechamber, which would have a door on the north leading to the offering chamber, and perhaps a door on the west leading to another storeroom. The north wall of the offering chamber may have had a door leading to another storeroom on the north side of the temple. Since the temple was rather small, one can propose an alternative arrangement with a single door in either the statue chamber or the offering chamber providing access to the storage areas on the north side of the temple.

Exterior Inscriptions

(fig. 18a right; pls. 34A, D, 35A, 156, 157b–d)

The exterior walls of the pyramid temple bore unusual and beautifully worked inscriptions consisting of rectangular royal-name panels and horizontal lines of text (fig. 18a right). A series of inscribed rectangular panels were arranged vertically next to the corner tori (for the tori of the pyramid temple, see pp. 50–52, 54). Although the precise arrangement of elements within the panels varied, they generally included names, titles, and epithets of Senwosret III, confronted by images, names, and epithets of the goddesses Nekhbet or Wadjet. Near the top of the temple's walls was a large, single line of horizontally oriented texts with names, titles, and epithets of the king and descriptions of him as beloved by various deities. It is likely that the exterior inscription fragments, which lack any trace of color, were left unpainted. After long exposure to the elements, the limestone acquired a medium- to deep-golden patina, but for the most part the surfaces remained solid and intact. The hieroglyphs were carved in exquisitely modeled high relief and were usually covered with dense, finely incised details, such as the individual feathers of various birds and the rectangular scales of snakes. Under Egypt's strong, raking sunlight, the effect must have been quite dramatic, with the beautifully worked hieroglyphs appearing to shimmer and dance along the edges of the smooth, golden-hued walls.

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[39] For a discussion of the decorative programs of Fifth and Sixth Dynasty pyramid temples, see Dieter Arnold, "Royal Cult Complexes of the Old and Middle Kingdoms," in *Temples of Ancient Egypt*, ed. Byron E. Shafer (Ithaca, New York, 1997), pp. 63–70.

The strongest evidence that these inscriptions originate from the outside of the pyramid temple is provided by several fairly large fragments that include pieces of the exterior corner torus (pls. 34D, 156a, 157b). Other fragments have been assigned to this group based on similarities of style, size, height of the relief, lack of paint, surface patina, and subject. In addition, inscriptions that must originate from the inside of the temple exhibit characteristics that are quite distinct from those found on the exterior inscriptions.

The restoration of two examples suggests that the width of the exterior royal-name panels was 52–63.5 cm (pl. 156a). Thus far, it has not been possible to restore a panel to its full height, which is estimated to have been about 87 cm. Each of the panels appears to have been cut by a horizontal masonry edge, but none of the panels seems to have had a vertical masonry edge, a finding that is consistent with the Egyptian practice of using single, large blocks that extend well beyond both sides of a corner. The top of each panel was delineated by a band of stars, while high-raised, well-rounded lines of medium width defined the sides and bottom. The northeast and southeast corners of the temple were not vertical but were battered inward, and as a result the vertical borders of the panels were placed at a slight angle in order to correspond at least somewhat to the batter of the walls. The tori that were placed on the sections of wall directly adjoining the pyramid (pp. 51–52; plan IIA–B) do not seem to have had a batter, and the sides of these panels may have been vertical. Panels were separated by narrow spaces between 0.9 and 1.7 cm (pl. 156d). Unknown are the distances between the foot of the wall and the lowermost panel, and the uppermost panel and the cavetto cornice. Blocks that can be identified as originating from the bottom of a column of panels have deliberate scratches and graffiti on the surface below the panel, suggesting that they were not very high off the ground (pl. 156c). General considerations indicate that each corner may have been flanked by four panels.

Every exterior royal-name panel included one or more of the king's names, the most frequent apparently the Horus name and the Khakaure cartouche, and depictions of either the goddess Nekhbet or Wadjet, respectively in the guise of a vulture or a coiled cobra, resting on a basket supported by the appropriate lily or papyrus plant. The representations of the goddesses and the king's titulary generally faced each other, so that the various elements were all oriented toward the center of the panel.[40] Architectural features preserved on approximately seven pieces indicate that the goddesses faced the center of the wall,[41] while the royal names were oriented toward the corners. In addition to these standard texts, a number of panels contained inscriptions relating to the *sed*-festival, including at least two that specifically mention "the first *sed*-festival" (pl. 156d).[42] The bottoms of all panels described the king as "beloved by" the particular goddess depicted above, followed by a horizontal line of text that expresses the common wish that the king "may be given life, prosperity, health, etc., like Re, forever" (pl. 156c). The number of vertical lines of text in each panel varied between three and four and seems to have been dependent upon the width of the phrases used; panels that contained the Horus name, which is somewhat wider than the cartouches, seem to have had only three lines of text. Rectangular arrangements of the names and titles of the king, as well as images and epithets of the crown deities, are common elements in Egyptian art and architecture, occurring on objects as diverse as diminutive stone vessels and enormous granite columns.[43] In the pyramid complex of Senwosret III, similar royal-name panels are found on the relief depictions of inscribed vessels that originate from the offering chamber (pp. 141–42; pl. 161c).

The outer vertical borders of the panels were placed 6–9 cm from the tori (pls. 156a, 157b). One section of a panel, which has been reconstructed from a number of fragments, has a space of about 11 cm to the left of its border and no indication of a corner torus; because of the position of an image of Nekhbet, it is assumed that the torus should lie to the left of the panel. Several possibilities could account for this discrepancy. It is possible, though unlikely, that there was some variation in the orientation of the royal titulary and the crown goddesses and that in this case the wall corner was not behind Nekhbet, meaning that the 11 cm space simply belongs to the central wall surface. It is more probable that the batter of the walls affected the distance between the corner tori and the panels. As a result, those panels that are farther from the torus would have originated from a lower section of the wall, and those panels that are closer to the torus would have been higher.[44] In this case, the panels would not have followed the batter of the corners. Instead, the builders would have found a compromise between a more noticeable distortion of the essentially rectangular panels and a more obvious disparity between the batter of the wall and panels with precise 90° corners.

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[40] However, two pieces seem to originate from panels in which at least part of the king's titulary and the goddess faced in the same direction.

[41] This arrangement has a parallel in the enclosure wall of Pepi I's pyramid in South Saqqara (Audran Labrousse in collaboration with Marc Albouy, *Les pyramides des reines: Une nouvelle nécropole à Saqqâra* [Paris, 1999], pp. 134–37). In the temple of Senwosret I now in the Open Air Museum at Karnak, the opposite arrangement is found: the goddesses face toward the corner, and the names of the king are oriented toward the center of the wall (Labib Habachi, "Devotion of Tuthmosis III to His Predecessors: A Propos of a Meeting of Sesostris I with His Courtiers," in *Mélanges Gamal Eddin Mokhtar*, vol. 1, ed. Paule Posener-Kriéger [Cairo, 1985], pls. 2–4). More research is needed to determine if any directional patterns can be established. The differences could reflect divergent north-south traditions, chronological developments, or a disparity between a temple built for the king and one dedicated to a deity.

[42] The more complete one is illustrated and discussed in Arnold and Oppenheim, "Senwosret III," p. 47, fig. 5. During the 2000 season, connections were found that restored more of the *nswt bity* and added the text at the bottom of the panel above. In the article the opinion is offered that the panel was added later, perhaps at the time of an actual *sed*-festival. However, this theory is unlikely, given the subsequent discovery of part of the panel above and the realization that at least two stylistic groups can be distinguished among the panels. It now appears that all panels were carved at roughly the same time and in conjunction with the rest of the pyramid temple decoration.

According to Erik Hornung and Elisabeth Staehelin, even the phrase "the first *sed*-festival" does not necessarily commemorate an actual event (*Studien zum Sedfest*, Aegyptiaca Helvetica I [Basel, 1974], pp. 62–65). William J. Murnane ("The Sed Festival: A Problem in Historical Method," *MDAIK* 37 [1981]: pp. 369–76) expresses the opposite opinion. See also Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1995–1996," *Orientalia* 66 (1997): p. 272.

[43] For a discussion of royal-name panels on vessels and other objects, see Dorothea Arnold and Elena Pischikova, "Stone Vessels: Luxury Items with Manifold Implications," in *Egyptian Art in the Age of the Pyramids*, exh. cat. (New York, 1999), pp. 125–28 with further references. Also, see here p. 141, n. 94. Columns with such panels include those found in the pyramid temples of Sahure (Borchardt, *Sahu-re*, pp. 43–46) and Unis (Labrousse, *Ounas*, pp. 23–31, pls. 9–11) and in the valley temple of Unis (Audran Labrousse and Ahmed M. Moussa, *Le temple d'accueil du complexe funéraire du roi Ounas*, Bibliothèque d'Étude 111 [Cairo, 1996], pp. 34–37, 46–51, pl. 8).

Panels and horizontal inscriptions were placed on all three of the pyramid temple's walls.[45] Although several blocks that include sections of panels and corner tori have been recovered, none of these pieces preserves panels on both sides of the corner. One puzzling block includes part of a panel with an inscription naming the cities of Dep and Pe, the remains of a triple corner torus, and what seems to be part of an uninscribed wall surface on the other side of the corner. The corner torus and the border of the panel are separated by 8 cm, but 24 cm of the second wall face is preserved; if a second panel existed, part of it should remain. The surface of this second face has a medium patina, but it was left rougher than a finished, exposed wall surface. The block must originate from the west side of the south wall and the uninscribed face must have been hidden behind masonry.

An analysis of the recovered and reconstructed pieces confirms that three walls were decorated. Excavated and/or restored blocks show four separate instances in which the royal-name panels met the horizontal inscription (pl. 157c); such intersections would have occurred twice on each wall (see below). Five pieces have been excavated that have large sections of wall surface below their bottom border, indicating that they belong to lowermost panels (pl. 156c). The pieces clearly originate from different panels. Since each wall would have had two columns of texts, and therefore two bottom panels, the recovery of parts of five panels from the bottoms of columns indicates that all three walls of the pyramid temple were inscribed. If our estimate of four panels per column is correct, the exterior of the pyramid temple would have been adorned with a total of twenty-four panels.

Between the columns of royal-name panels were single, horizontal bands of text approximately 37 cm high (pl. 156b). The tops and bottoms of the bands were defined by broad, well-rounded border lines. The texts were composed with standard ritual formulas consisting of the names and titles of Senwosret III, descriptions of him as beloved by various deities, and wishes for his life, health, dominion, etc. Most of the hieroglyphs were cut by a horizontal masonry edge. Fragments that include the juncture of the horizontal texts and the vertical panels reveal that the horizontal texts terminated at the inner edges of panels and did not continue to the corners of the walls (pl. 157c).[46]

Preserved hieroglyphs read from both right to left and left to right, leaving two possibilities for the orientation of the horizontal texts: either the inscriptions read in one direction on each wall, in a manner similar to the texts on the inscribed tables rendered in relief, or the texts were arranged symmetrically on either side of a central ankh-sign, a common method of designing facade inscriptions.[47] Three of the four Senwosret III pieces that include the juncture of the horizontal texts and panels contain part of the word *djet* at the end of the horizontal line, suggesting that a symmetrical scheme was used, as one would expect to find the phrase *mi Re djet* at the end of this type of ritual inscription (pl. 157c).[48] It is more difficult to determine what phrase began the lines of text, because fragments coming from the center of the wall would not retain any obvious clues as to their original position. Some indication of the pattern used to organize Senwosret III's titulary at Dahshur is provided by the inscribed tables rendered in relief in the offering chamber, which all read from right to left (pp. 141–42; pl. 161c). These inscriptions always begin with the formula *ankh Hor*, followed by the king's Horus name. Several fragments of the exterior horizontal inscription have been found that include part of the *ankh Hor* combination, and read from both left to right and right to left. Each has a vertical masonry edge down the center of the ankh, possibly because these pieces originate from similar parts of the walls (pl. 156b). Based on these pieces of evidence, it seems likely that the horizontal texts began in the center of the wall and that there was at least some symmetry on each wall; it is also probable that each of the texts started with *ankh Hor*, was followed by the king's Horus name,[49] and ended with the *mi Re djet* formula.

Due to the fragmentary nature of the pyramid temple's exterior inscription, many questions concerning its overall arrangement remain unanswered. For example, the number of royal-name panels in each column is uncertain, as is the distribution of the depictions of the crown goddesses. Were the goddesses oriented in the direction of their home cities, with Wadjet on the north wall and Nekhbet on the south? Or did their images alternate in each vertical column, as is suggested by parallels in the pyramid complex of Pepi I at South Saqqara and the temple of Senwosret I at Karnak (see below)? Did the horizontal texts read in a completely symmetrical fashion on either side of the central ankh, or did the inscriptions vary? And were the royal-name panels at each end of a single wall mirror images of each other, or did the compositions differ?

One indication that there was symmetry across the wall surfaces is provided by the four previously discussed pieces that include both the ends of the horizontal inscription and parts of the panels (pl. 157c). Because all these pieces belong to the uppermost panels, it is possible to explore their relationships to each other. All four panels have the Khakaure cartouche and/or the epithets that precede it on their innermost side, while three of the panels have the Horus name next to the cartouche, and two of the panels preserve traces of

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[44] One fragment that originates from the bottom of a wall has a space of 8.7 cm between the panel border and the corner torus. A discrepancy of 2–3 cm would not have been easily detectable across such a large surface.

[45] Since the pyramid temple was directly attached to the pyramid, it had only three exterior walls.

[46] One of the pieces showing this juncture was found by De Morgan (*Dahchour* I, p. 51, fig. 111). In 1994 the present excavators recovered the block from the ruins of De Morgan's excavation house. De Morgan's published drawing lacks detail and misrepresents some of the hieroglyphs, particularly at the edges of the block.

[47] See, for example, Pierre Lacau and Henri Chevrier, *Une chapelle de Sésostris Ier à Karnak* (Cairo, 1969), pls. 2, 3, 9, 10; Hourig Sourouzian, "The Buildings of the Nineteenth and Twentieth Dynasties," in *Egypt: The World of the Pharaohs*, ed. Regine Schulz and Matthias Seidel (Cologne, 1998), p. 197, fig. 92, p. 214, fig. 127.

[48] On the fourth piece, only the bottom border line of the horizontal panel is distinct; the hieroglyphs are worn away.

[49] It should be noted that other phrases can be placed in the center of a symmetrical inscription. The formula found on a two-line door lintel from Medamud is inscribed "the good god Khakaure" (upper) and "the son of Re Senwosret" (lower) on either side of a central ankh (M. F. Bisson de la Roque, *Rapport sur les fouilles de Médamoud [1929]*, Fouilles de l'Institut français d'archéologie orientale du Caire [année 1929], Rapports préliminaires 7 [Cairo, 1930], p. 80, fig. 71; idem, *Rapport sur les fouilles de Médamoud [1930]*, Fouilles de l'Institut français d'archéologie orientale du Caire [année 1930], Rapports préliminaires 8 [Cairo, 1931], pl. 7).

Nekhbet facing the Horus name.[50] The similarity of these four panels suggests that there was some symmetry among the panels on each wall, and perhaps even on all inscribed walls.

Despite the narrow space (1.68 m) between the pyramid temple and the inner enclosure wall, it seems likely that the entrance to the temple was located on the east side (pp. 48–49; fig. 17, upper). A more spacious access route to the temple may have been provided by a gate through the center of the east side of the inner enclosure wall, but no evidence of such a structure remains (p. 48; pl. 154). An entrance on the east side would be in keeping with the majority of known pyramid temples and would allow a traditional progression through the temple's rooms.

Two parts of the inscribed limestone lintel that once marked the pyramid temple's entrance have been restored and identified: a large section that stood to the upper left of the doorway (pls. 35A, 157d) and a smaller piece that could have originated from either the lower right side or the center of the lintel. The precise placement of the larger block above the upper left corner of the doorframe is confirmed by the presence of a door socket on the right underside of the piece (p. 53; pl. 35A). The lintel has broad side and bottom borders that consist of a narrow inner stripe adjoining a wide outer one; the wider stripe is at a slightly lower level than the narrow one but is still raised above the background. On the left side of the block is the king's Horus name, which confronted Nekhbet, now mostly missing, on a *nb*-basket supported by a lily plant. Behind Nekhbet is a vertical column of epithets related to her. A vertically oriented *di ankh* formula seems to have been placed farther to the right, rather than across the bottom as it is on the royal-name panels. The elements of the lintel inscription are the reverse of those found on the royal-name panels: here the Horus name faces away from the corner, while the Nekhbet faces toward it.

The smaller piece contains most of the word for the *pr-nsr*-shrine, which belongs to Wadjet. It can be identified as belonging to the door decoration because it has the same distinct lower border as the larger block. The fragment originates either from the center of the lintel or the right side, depending on how the elements were distributed (see below). Double columns of vertical text may have covered the doorframes, but no pieces of these inscriptions can be securely identified. It is uncertain whether the entrance was more or less flush with the east wall of the temple (as shown on pl. 153a), or if it was set into a recess in the same manner as the entrances to the inner sections of some Old Kingdom pyramid temples.[51]

Red granite lintels with images of Wadjet and Nekhbet flanking the king's titulary have been found in the Old Kingdom pyramid complexes of Sahure, Unis, and possibly Teti.[52] In each of these examples, the crown goddesses are placed on the side of the wall that corresponds to the direction of their respective cult centers—namely, with Nekhbet on the south and Wadjet on the north. Epithets of each of the goddesses are placed in front of them. At either end of the lintel are inward-facing Horus names, which both confront the crown goddesses and begin the vertical text columns that extend down the doorframes. In all of these examples, the back-to-back goddesses are placed near each other, directly above the doorway, and have only variations of the standard *di ankh* formula between them. On Senwosret III's lintel, the placement of the pivot hole shows that the goddesses and their inscriptions were to the sides of the actual opening, meaning that another element must have filled the center.

Of particular importance for understanding the Dahshur doorframe is a red granite lintel with a sunken relief inscription found at 'Ezbet Helmi, but probably originating from 'Ezbet Rushdi, which was inscribed by Amenemhat I on one side and by Senwosret III on the other.[53] Excluding the dedicatory inscription at the far left side of the lintel, the composition of the face inscribed by Senwosret III is so similar to the reconstructed left section of the Dahshur lintel that one might even suggest a single designer for both blocks. Particularly striking are the identical arrangements of hieroglyphs around the lily plant and the placement of the title *henet tawy* to the right of the bottom of the lily, though the other titles of Nekhbet differ somewhat between the two lintels. On the 'Ezbet Helmi lintel, images of Nekhbet confront Senwosret III's Horus name on each side of the block, while depictions of Wadjet are placed on either side of a large central cartouche. It is possible either that a similar arrangement was found on the Dahshur lintel, or that images of Nekhbet were placed on the south side of the block and depictions of Wadjet on the north.[54] The first possibility has the advantage of creating a symmetrical arrangement, while the second coordinates the position of each goddess with the direction of her cult city.

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[50] Both Nekhbet and Wadjet are found on the panels from the bottoms of the columns.

[51] Dieter Arnold, "Royal Cult Complexes of the Old and Middle Kingdoms," in *Temples of Ancient Egypt*, ed. Byron E. Shafer (Ithaca, New York, 1997), pp. 67–68, fig. 28. An entrance in a recess would present the problem of further reducing the already-limited interior space.

[52] Sahure pyramid temple: Borchardt, *Sahure*, pp. 51–52, fig. 58, pl. 10. Unis valley temple: Audran Labrousse and Ahmed M. Moussa, *Le temple d'accueil du complexe funéraire du roi Ounas*, Bibliothèque d'Étude 111 (Cairo, 1996), pp. 41–43, pl. 9, doc. 1. The Teti lintels were not found in this king's pyramid complex, but at Memphis, Bubastis, Tanis, and Qantir. Lauer (*Téti*, pp. 96–97, with further references to the publications of the individual pieces) assumed that they originated from Teti's pyramid complex. For the possibility that major Old Kingdom temples existed in the Delta and that their blocks were reused in later periods, see Dieter Arnold, "Hypostyle Halls of the Old and Middle Kingdom?" in *Studies in Honor of William Kelly Simpson*, ed. Peter Der Manuelian (Boston, 1996), pp. 39–54. For additional Old and Middle Kingdom examples of this type of door, see Eileen N. Hirsch, "Bermerkungen zu Toren in den Tempeln des Alten und Mittleren Reiches," in *Wege öffnen: Festschrift für Rolf Gundlach zum 65. Geburtstag*, ed. Mechthild Schade-Busch, Ägypten und Altes Testament 35 (Wiesbaden, 1996), pp. 89–90, 96. For Late Period door lintels that have Nekhbet and Wadjet in alternating positions in front of the Horus name and the king's cartouche, see Shafia Bedier, "Zwei Türblöcke des Königs Psammetich II. aus Buto," in *Proceedings of the Seventh International Congress of Egyptologists*, ed. C. J. Eyre (Leuven, 1998), pp. 119–27.

[53] Édouard Naville, *The Shrine of Saft el Henneh and the Land of Goshen (1885)* (London, 1887), p. 22, pl. 9, A1; Labib Habachi, "Khata'na-Qantir: Importance," *ASAE* 52 (1952): pp. 448–51, pls. 3–4; Manfred Bietak, *Avaris the Capital of the Hyksos: Recent Excavations at Tell el-Dab'a* (London, 1996), p. 10, pl. 27a; Peter Jánosi, "Neue Grabungsergebnisse aus Tell el-Dab'a und 'Ezbet Helmi im östlichen Nildelta (1989–1991): IV. Tell el-Dab'a–'Ezbet Helmi Vorbericht über den Grabungsplatz H/I (1989–1992)," *Ägypten und Levante* IV (Vienna, 1994), pp. 20–38. I wish to thank Peter Jánosi for providing me with a copy of his drawing of the Senwosret III side of the lintel. The lintel will be published in Labib Habachi, *Tell el-Dab'a and Qantir: The Site and its connection with Avaris and Piramesse*, Tell el-Dab'a I, Untersuchungen der Zweigstelle Kairo des Österreichsiches Akademie der Wissenschaften Denkschriften der Gesamtakademie, Bd. XXII (Vienna, , 2001), cat. no. 1, figs. 16–17, pls. 1AB, 7–9, foldouts 1–2.

[54] A red granite lintel from Medamud has a central cartouche supported by a *sema-tawy*-sign and flanked by Wadjet; on the outer edges of the lintel, Nekhbet confronts the inward-facing Horus name of Senwosret III (M. F. Bisson de la Roque, *Rapport sur les fouilles de Médamoud*, Fouilles de l'Institut français d'archéologie orientale du Caire [années 1924–25], Rapports préliminaires 3 [Cairo, 1926], pp. 26–27, figs. 19–20). Another large piece of red granite that appears to be part of a lintel includes an image of Nekhbet facing the Khakaure cartouche of Senwosret III. It was seen by the author near the parking lot at Meidum; its place of origin is unknown.

Thus far, only two parallels have been identified on a sacred royal building of the Old or early Middle Kingdom for an exterior decoration consisting of vertically oriented royal-name panels and horizontal lines of text: the inner enclosure wall of the pyramid complex of Pepi I at South Saqqara and a temple built by Senwosret I, which is partially preserved in the Open Air Museum at Karnak. Both are in raised relief. The royal-name panels on the inner enclosure wall of Pepi I are composed in a manner similar to the panels found at Dahshur, with the crown goddesses facing away from the corner and toward the titulary of the king.[55] The panels were mirror images of each other on either side of the corner. Geographic orientation was not a factor in the positioning of the goddesses; instead, panels with Nekhbet seem to have been located above Wadjet on each corner. Only one corner of Senwosret I's Karnak structure is preserved.[56] Here, the orientation of the panels is the reverse of that found at Dahshur, with the crown goddesses facing toward the corner, and the royal titulary facing the center of the wall. The Karnak structure also included an elaborate scene in the center of the wall, while that at Dahshur is presumed to have been empty. As at Pepi I, the panels of Senwosret I's temple were mirror images of each other on either side of the corner, and panels with Nekhbet were placed above those with Wadjet. The horizontal inscription is also somewhat similar to that at Dahshur because of its inclusion of blessings for the king and the standard *mi Re djet* formula ending.

According to our current state of knowledge, Senwosret III's placement of an elaborate inscription on the exterior of a pyramid temple has no precedents or definitive parallels.[57] Why, then, did his builders choose this type of decoration? Although the exterior walls of pyramid temples seem to have been left undecorated, inner enclosure walls in pyramid complexes were sometimes adorned with texts that included the king's titulary and representations of deities.[58] However, Senwosret III's archaizing inner enclosure wall was constructed with an elaborate series of projections, recesses, grooves, and a sunken "window" pattern (pp. 23–25; fig. 2), all of which rendered it unsuitable for coherent lines of text and perhaps necessitated the transfer of these inscriptions to another structure. It is possible that the texts on enclosure walls or on the exterior of the pyramid temple were needed to magically delineate the sacred precinct and/or to provide protection for the temple.[59]

During the 2000 season, the excavation of parts of two large blocks showed that vertical tori were erected not only at the northeast and southeast corners of the pyramid temple, but also on the west ends of the north and south walls (pp. 51–52; plan IIA–B); unfortunately, neither of these blocks includes remains of panels. The placement of tori on walls that directly adjoined the pyramid is unusual, if not unique, because tori are traditionally used to articulate freestanding corners, which did not exist at the west ends of the north and south walls. One possible reason for their inclusion could have been the need to create balanced, symmetrical walls. With the addition of these elements, each column of vertically oriented royal-name panels was framed by a vertical torus, while the horizontal text was bordered above by both the horizontal torus and the cavetto cornice (pl. 155). Such an elaborate arrangement of architectural elements and inscriptions would have had the effect of visually, and perhaps symbolically, separating the pyramid temple from the pyramid. The concept of splitting the mortuary temple and the tomb became more explicit with the creation of Senwosret III's south temple and this separation is an important feature of New Kingdom royal funerary temples. The decoration of the exterior of Senwosret III's pyramid temple may reflect the initial phases of this new concept of royal funerary architecture and belief.

Statue Chamber and Room with Ritual Scenes

(pls. 157a, 158)

A separate room with a shrine or shrines must have housed one or more statues (p. 50); a number of small black granite statue fragments have been found that originate from rounded parts of the body and thrones. If the architects followed the traditional layout of a pyramid temple, the statue chamber and the room with ritual scenes would have preceded the so-called square antechamber, which in turn would have led into the offering hall. As has been noted above, Senwosret III's pyramid temple seems to have contained only the elements of the so-called inner temple, the first section of which was filled with five statue shrines arranged on either side of the east-west axis of the temple. If the same model was used by Senwosret III's architects, the visitor would have entered the temple through the center of the east side and immediately confronted the statues. The visitor might even have been able to glimpse the statues from the narrow space between the inner enclosure wall and the pyramid temple, a seeming violation of the usual secluded placement of temple statuary.[60] It is therefore possible that 1) a small chamber preceded the statue shrines; 2) the room with ritual scenes preceded the statue chamber; 3) the entrance to the temple was not in the center of the east side, resulting in a different relationship between the rooms; or 4) the statue chamber was located elsewhere in the temple, perhaps directly in front of the pyramid and north or south of the offering hall. At present, it is not possible to choose among this complex series of options. It is also possible that some walls of the statue chamber were covered with relief decoration, so that some of the scenes described below actually may have originated from the space around the statues rather than from a room with ritual scenes.

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[55] Audran Labrousse in collaboration with Marc Albouy, *Les pyramides des reines: Une nouvelle nécropole à Saqqâra* (Paris, 1999), pp. 134–37. On one of the photographs, it appears that pigment remains on some of the hieroglyphs. However, the text states that all paint has disappeared.

[56] Labib Habachi, "Devotion of Tuthmosis III to his Predecessors: A Propos of a Meeting of Sesostris I with his Courtiers," in *Mélanges Gamal Eddin Mokhtar*, vol. 1, ed. Paule Posener-Kriéger (Cairo, 1985), pp. 349–59. According to Habachi, the blocks with the horizontal inscriptions served as architraves and were supported by pillars. It is difficult to imagine that the pyramid temple of Senwosret III had a similar arrangement, since an open facade with a portico is not attested in any other pyramid temple. See also Luc Gabolde, "Karnak sous le règne de Sésostris Ier," *Égypte Afrique & Orient* 16 (Jan.–Feb. 2000), pp. 13, 14, 19.

[57] The exterior inscription of Senwosret III may have parallels in the later Twelfth Dynasty. Josef Wegner appears to have found a façade inscription that included figures in the Senwosret III temple in Abydos ("The Mortuary Complex of Senwosret III: A Study of Middle Kingdom State Activity and the Cult of Osiris at Abydos," [Ph.D. diss., University of Pennsylvania, 1996], pp. 269–70). It is also possible that a structure in Senwosret II's pyramid complex at Lahun had some type of inscribed panel decoration on the façade (Petrie, *Lahun* II, p. 10, pl. XVII, lower right corner). Relief fragments that resemble royal-name panels and exterior horizontal inscriptions were found in the pyramid complex of Amenemhat III at Dahshur (Dieter Arnold, unpublished). The Twelfth Dynasty temple at Medinet Madi, which was dedicated to deities rather than the king, also had an exterior inscription with figures (A. Vogliano, *Secondo rapporto degli scavi condotti dalla missione archeologica d'Egitto della R. Università di Milano nella zona di Madinet Madi [campagna inverno e primavera 1936-XIV] a cura di Achille Vogliano* [Milan, 1937], pl. 6; Rudolf Naumann, "Der Tempel des Mittleren Reichs in Medinet Madi," *MDAIK* 8 [1939]: p. 186, pl. 30).

[58] For example, the enclosure walls of Pepi I (Audran Labrousse in collaboration with Marc Albouy, *Les pyramides des reines: Une nouvelle nécropole à Saqqâra* [Paris, 1999], pp. 134–37) and Senwosret I (Arnold, *Senwosret I*, vol. 1, pp. 58–63, pls. 27–37, 87–88, 94; idem, *Senwosret I*, vol. 3, pls. 1, 38–39).

[59] Exterior inscriptions are commonly found on private mastabas from the Old Kingdom on. For Old Kingdom examples, see T.G.H. James and M. R. Apted, *The Mastaba of Khentika Called Ikhekhi*, Archaeological Survey of Egypt Thirtieth Memoir (London, 1953), pp. 19–20, pls. 1, 5–8; Cecil M. Firth and Battiscombe Gunn, *Excavations at Saqqara: Teti Pyramid Cemeteries*, vol. 1, *Text* (Cairo, 1926), p. 111, nos. 5–6. For Middle Kingdom examples, see Cecil M. Firth and Battiscombe Gunn, *Excavations at Saqqara: Teti Pyramid Cemeteries*, vol. 2, *Plates* (Cairo, 1926), pp. 275–76, nos. 1–3, pl. 20. In the private cemetery north of the Senwosret III pyramid complex, most of the inscribed north wall and part of the east wall of the mastaba of Nebit I have been recovered by the present expedition (Dieter Arnold, "Two New Mastabas of the Twelfth Dynasty at Dahshur," *Egyptian Archaeology* 9 [1996]: pp. 23–25).

A number of fragments depict parts of scenes that do not correspond to the iconography of either the so-called square antechamber or the offering chamber, and it is therefore assumed that these pieces originate from another decorated room. Several scene types can be isolated, though in most cases we have only a rough idea of the specific action that is being depicted. It is also not yet possible to define which walls the scenes originate from or their relationship to each other.

Two relatively small pieces securely identify one scene as a large-scale depiction of a pair of deities purifying the pharaoh (pl. 158c). Preserved on these fragments are the tops of two large-scale, yellow *hes*-vases from which emerge streams of ankhs. Generally in this type of scene, Horus and Thoth stand on either side of the pharaoh and hold *hes*-vases over the head of the king. Ankhs, or sometimes *djed*-pillars and *was*-scepters, emerge from the vessels and surround the body of the standing king.[61] No purification scenes remain from the Old Kingdom; the earliest surviving example has been reconstructed from a few fragments found in the Eleventh Dynasty mortuary temple of Mentuhotep Nebhepetre at Deir el-Bahari.[62] The fragments found in the Senwosret III complex are the second-oldest preserved depiction of this ritual. From the Eighteenth Dynasty on, many purification scenes are preserved.

Several fragments that belong to images of lifesize deities have been found in the Senwosret III complex. These representations include the hair and neck of a figure of Seth facing to the right, the snout of another Seth facing to the left, the upper part of the head of a goddess (pl. 158b), and a number of pieces of multicolored, striped hair. Some of these figures, particularly one of the images of Seth, may originate from the purification scene, while other figures could belong to scenes depicting the king's coronation, the king being suckled or embraced by a goddess, or the presentation of the so-called breath of life to the pharaoh. Because of the relatively small size and scarcity of surviving fragments, it is not possible to determine from what type of scene these pieces originate.

The most complete depiction of Senwosret III that has thus far been recovered from the complex shows a roughly half-lifesize, enthroned pharaoh wearing the red crown and facing to the viewer's right (pl. 157a). The king's arms are bent at the elbows, and he holds a flail in his proper right hand. There are several possible objects that the king could have held in his now-missing proper left hand.[63] In other examples of scenes that depict the enthroned king in this pose, the pharaoh is surrounded by a number of deities who raise ankh-signs and other emblems of power toward him.[64] Unfortunately, on this piece there is a large triangular gap directly in front of the pharaoh's mouth, making it impossible to determine if an object was held up to him. Parts of several deities that are similar in scale to the enthroned king have been found in the remains of Senwosret III's pyramid temple, including one with a jackal head and two with falcon heads. At least some of these figures hold a *was*-scepter in the hand of their outstretched forward arm and an ankh in the hand of the vertical back arm. These figures may have either surrounded the enthroned king in the red crown or originate from adjoining scenes.

Similar in scale are parts of a number of fecundity figures who balance *hetep*-trays on their outstretched proper right arms and hold libation vessels in their proper left hands.

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[60] In Dieter Arnold's reconstruction of the entrance to the inner section of the pyramid temple of Pepi II ("Royal Cult Complexes of the Old and Middle Kingdoms," in *Temples of Ancient Egypt*, ed. Byron E. Shafer [Ithaca, New York, 1997], pp. 67–68, fig. 28), the statue shrines are visible from the transversal hall, an area that loosely corresponds to the narrow space between the inner enclosure wall and the pyramid temple of Senwosret III. However, as far as we know, the space between temple and enclosure wall belonged to the open inner court, while the transversal hall of the pyramid temple was part of the closed temple.

[61] Seth is sometimes substituted for Thoth. In the late Twelfth Dynasty temple at Medinet Madi, the deities Sobek and Anubis perform the rite. For a detailed discussion of purification scenes, see Alan H. Gardiner, "The Baptism of Pharaoh," *JEA* 36 (1950): pp. 3–12; idem, "Addendum to 'The Baptism of Pharaoh,'" *JEA* 37 (1951): p. 111.

[62] Unpublished excavation material of Dieter Arnold. Previously, the earliest preserved instance of this scene type was believed to be the example at Medinet Madi, see Alan H. Gardiner, "Addendum to 'The Baptism of Pharaoh,'" *JEA* 37 (1951): p. 111.

[63] In the pyramid temple of Sahure, the king holds a *mekes* in his back hand; the forward hand is broken away (Borchardt, *Sahu-re*, vol. 2, pl. 42). In the pyramid temple of Teti, one depiction of the king holds a *mekes* in the back hand, while another grasps a flail in the forward hand; the figures could either be running or enthroned (Lauer, *Téti*, pp. 62–63, nos. 2–3, pl. 23BC). In the mortuary temple of Mentuhotep Nebhepetre, the king carries a flail and a staff (Dieter Arnold, *Der Tempel des Königs Mentuhotep von Deir el-Bahari*, vol. 2, *Die Wandreliefs des Sanktuares* [Mainz, 1974], pp. 22–23, frontispiece, pls. 10, 12). In the chapel at Dendera constructed by the same pharaoh, the king's forward hand is empty, while his back hand holds a flail (Labib Habachi, "King Nebhepetre Menthuhotp: His Monuments, Place in History, Deification and Unusual Representations in the Form of Gods," *MDAIK* 19 [1963]: pp. 24–27, figs. 7–8, pls. 6–8). A relief from the pyramid temple of Amenemhat I at Lisht depicts the king holding a *mekes* in his forward hand and a flail in his back hand (William C. Hayes, *The Scepter of Egypt*, pt. 1, *From the Earliest Times to the End of the Middle Kingdom* [New York, 1953, rev. ed. 1990], pp. 172–73, fig. 103).

[64] A relief found in the pyramid temple of Sahure preserves the legs of a god in front of the king (Borchardt, *Sahu-re*, vol. 2, pl. 42). A large block found in the pyramid temple of Djedkare Isesi shows Hathor pointing an ankh-sign toward the mouth of the king while Wadjet embraces him from behind. In this case the goddesses stand directly in front of and behind the king, and the male deities Horus (behind Hathor) and Seth (behind Wadjet) occupy secondary positions. The king's arms are less sharply bent at the elbow, and he grasps ankhs in at least one hand; he does not appear to carry a flail (Georges Goyon, "Le cylindre de l'Ancien Empire du Musée d'Ismaïlia," *BIFAO* 67 [1969]: pl. 39). In the pyramid temple of Unis, the upper part of a king in a similar pose was found; the figure was probably running, and no deities are preserved on the block (Labrousse, *Ounas*, p. 85, doc. 29). In the mortuary temple of Mentuhotep Nebhepetre at Deir el-Bahari, Horus (in front of the king) and Seth (behind him) hold millions-of-years-signs and ankhs, which are held away from the king (Dieter Arnold, *Der Tempel des Königs Mentuhotep von Deir el-Bahari*, vol. 2, *Die Wandreliefs des Sanktuares* [Mainz, 1974], pp. 22–23, frontispiece, pls. 10, 12). Goddesses holding *was*-scepters and ankhs seem to have stood behind the gods. A smaller-scale depiction of Amenemhat I in a similar pose was found in his pyramid temple at Lisht; here Nekhbet and Horus stand behind the pharaoh, while Anubis and Wadjet are placed in front of him (William C. Hayes, *The Scepter of Egypt*, pt. 1, *From the Earliest Times to the End of the Middle Kingdom* [New York, 1953, rev. ed. 1990], pp. 172–73, fig. 103).

Figures of this type could originate from the offering chamber, where they would stand below and behind the enthroned king.[65] However, all the striding fecundity figures thus far recovered face to the viewer's left; it seems more likely that at least some of the figures originate from a separate procession of fecundities, perhaps similar to those found in the pyramid temple of Sahure, rather than from the offering chamber.[66] The position of such a procession and its relationship to the other scenes in the chamber are as yet uncertain.

Several small pieces depict parts of ships under sail, with small-scale figures of sailors engaged in various tasks (pl. 158e).[67] One bigger fragment may include part of the mast and sail of a larger ship, which could be analogous to Sahure's so-called ship of state.[68] The purpose of the voyage is uncertain, but a clue may be provided by a small fragment that includes parts of two women, both of whom bend their arms in gestures of reverence or respect (pl. 158d).[69] The torso of the woman in front preserves a long, pendulous breast, a physical imperfection that is not commonly found in the idealized representations of Egyptians but is similar to the less elegant physical features sometimes used in depictions of foreign women.[70] Similar bent-arm poses are adopted by the foreigners depicted in the pyramid temple of Sahure, including those who stand on ships.[71] It is therefore possible that the ship scene in the pyramid temple of Senwosret III depicts foreign captives being transported to Egypt.[72]

The question as to whether or not foreigners, presumably in a state of subjugation, were depicted in the ritual-scenes chamber is also raised by an unusual female figure whose hair features alternating stripes with no color and with darker red dots on top of an orangey red ground (pl. 158a). The base of a horn remains on her forehead. Above her head are preserved the left end of a pool hieroglyph and the bottom of a vertical line. The woman could be a representation of a Libyan captive, since these figures are characterized by horns protruding from their foreheads. In addition, one of the names of the tribes on the famous relief depicting Libyan captives found in the pyramid temple of Sahure includes the pool-sign.[73] However, the female figure's scale is the same as that found in Senwosret III's deity procession, and she wears an Egyptian broad collar, rather than the distinctive Libyan sashes. The vertical back arm of the figure, which is broken above the elbow, does not help to identify it, since both goddesses and standing, unbound captives can have back arms in this position. The figure could therefore originate from a scene depicting foreign captives, but it may be an unusual representation of a foreign, desert, or oasis goddess. Without further additions to the fragment, it is impossible to choose among these options.

"Square" Antechamber

(pls. 159, 160a–c)

A great number of fragments that must originate from a chamber devoted to depictions of deity processions have been excavated. The standard architectural form for this chamber, which is best preserved in the pyramid temple of Pepi II, is a square space in the center of which is a granite column supporting a granite lintel. Although large sections of Senwosret III's deity processions have been excavated and reconstructed, it is not possible to state with assurance that the chamber was square, and no identifiable pieces of a central column or its lintel have been discovered. The general layout of the chamber's decorative program would have consisted of several registers of deities on each wall walking in procession toward large standing images of the king. Between the deities and the king would have been long vertical columns of texts recounting the speeches made by the gods to the king. A large fragment with parts of four columns of one these speeches has been reconstructed.

The deities faced both left and right; the distribution of the preserved fragments suggests that the deities faced to the viewer's right on three walls and to the left on one wall.[74] Each deity grasps a *was*-scepter in the hand of his or her outstretched forward arm and holds an ankh in the hand of the vertical back arm. Male deities adopt standard striding poses, while the legs of the goddesses are only slightly parted, perhaps because their tight dresses only allowed them to take small steps. No chapels separate the figures.[75] Inscriptions above the heads of each figure identify the deity either by name, by the locality from which he or she originated, or by an epithet. Most texts begin with the common wish formula consisting of a *di*-sign, followed by the ankh-, *was*-, *djed*-, or *s*-signs. The number and size of these signs—for example, the narrow *s* as opposed to the broader *djed*—regularized the space occupied by each inscription. Short, vertical green lines separated the deity inscriptions. At the top of each register was a star band, noticeably larger above the uppermost registers (pl. 159a). Part or all of one register on the wall with figures facing to the left featured enthroned deities, smaller in scale than the standing deities above (pl. 160b), which are the same height as the rest of the deity procession. A narrower register might have been needed to accommodate a window, door, or perhaps the end of a lintel supported by a central column.[76]

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[65] As, for example, in the offering chamber of Pepi II (Jéquier, *Pepi II/2*, pls. 61, 66).

[66] Borchardt, *Sahu-re*, vol. 2, pls. 29–30.

[67] For a discussion of sailing scenes in Old Kingdom pyramid temples, see Adela Oppenheim, in *Egyptian Art in the Age of the Pyramids*, exh. cat. (New York, 1999), pp. 318–27, nos. 103–7.

[68] Sahure's ship of state scene was found in his valley temple (Borchardt, *Sahu-re*, vol. 2, pp. 22–24, fig. 4, pl. 9).

[69] Brigitte Dominicus, *Gesten und Gebärden in Darstellungen des Alten und Mittleren Reiches*, Studien zur Archäologie und Geschichte Altägyptens 10 (Heidelberg, 1994), pp. 21–25, fig. 7g.

[70] See, for example, a figure in the tomb of Anta in Deshasheh (W. M. Flinders Petrie, *Deshasheh 1897*, Fifteenth Memoir of the Egypt Exploration Fund [London, 1898], fig. 4, lower left corner of main scene); and a fragment from the mortuary temple of Mentuhotep Nebhepetre (Édouard Naville, *The XIth Dynasty Temple at Deir el-Bahari*, pt. 1, Twenty-eighth Memoir of the Egypt Exploration Fund [London, 1907], pl. 14F).

[71] Borchardt, *Sahu-re*, vol. 2, pls. 1, 12–13. The foreign women depicted in these scenes do not appear to have pendulous breasts.

[72] Ship scenes in pyramid temples are generally found in the outer sections of these structures (Borchardt, *Sahu-re*, vol. 2, pp. 25–28, pls. 11–14). However, foreigners are found in the inner part of the pyramid temple of Pepi II, both in the statue chamber and in the room that precedes the square antechamber (Jéquier, *Pepi II/2*, pp. 25, 26–34, pls. 35–38, 40).

[73] Borchardt, *Sahu-re*, vol. 2, p. 11, pl. 1; the Libyan tribe in the second preserved register from the top is called the Bash. Borchardt does not mention whether any color remained on the relief.

[74] Jéquier's reconstruction of Pepi II's square antechamber shows the reverse, with one wall of deities facing right (east wall) and three walls of deities facing left (south, west, and north walls). See Jéquier, *Pepi II/2*, pls. 46–60.

[75] In Pepi II's antechamber some deities are shown with chapels (Jéquier, *Pepi II/2*, pls. 46–47 [south wall, deities face left, no chapels], 50, 52–53 [west wall, deities face left, most with chapels], 54, 56 [north wall, deities face left, no chapels], 58, 60 [east wall, deities face right, chapels]).

[76] In the pyramid temple of Pepi II narrower registers were created in order to accommodate the lintel. However, the smaller figures were placed below the lintel, not above it (Jéquier, *Pepi II/2*, pp. 35, 44, pls. 50, 58).

One large, restored piece includes the ends of two columns of a gods' speech followed by parts of a female and male deity facing to the right. Below is a winged sun disk that presumably was placed over a door.[77]

Four types of figures are found in the antechamber: human-headed male and female deities, and animal-headed male and female deities. Human-headed male deities seem to be bare-chested and wear kilts (pl. 159b); their hair tends to be solid black, though it is occasionally striated. The animal-headed male deities, which include falcons, ibises, rams, Seths (pl. 159e), jackals, and crocodiles, always wear blue-green tunics with two straps that are knotted at the shoulders. The tunics are cinched at the waist by blue-green belts, which have yellow *tyet*-knots hanging from the buckles. Their hair is generally striated and blue-green. Most males of both types wear broad collars. Both the human- and animal-headed goddesses (pls. 159c–d, 160c), which seem to be mainly lionesses, wear long, usually white dresses that reach the ankles and have two straps knotted at the shoulders. A few goddesses have red dresses, but unfortunately neither the heads nor the inscriptions of these deities are preserved, making it is impossible to determine the criteria for the depiction of this garment. The goddesses are generally adorned with bracelets on each wrist, anklets on each leg, and broad collars. Most of the human-headed goddesses have solid black hair, though some have hair with incised striations.

In contrast to the antechamber of Pepi II, where each wall had three registers of deities followed by one each of cattle slaughtering and bowing officials,[78] the walls of Senwosret III's antechamber seem to have been completely covered with deities. The number of registers per wall in the Senwosret III antechamber was either four or five—with a minimum of five, and perhaps as many as eight, deities in each row. Each register was probably about 74 cm high; the length of each row has not yet been determined. Evidence that the antechamber remained in a relatively intact state until at least the Amarna period is provided by a male deity facing to the left, who was clearly deliberately defaced with a pointed chisel, while the following male and female deities were left untouched (pl. 160a). The most logical explanation for this selective destruction is that the figure was a representation of Amun, mutilated during the Amarna period.[79]

Multiple manifestations of a number of deities seem to have been included in the program. Most striking is the presence of at least seven images of Seth, identified by preserved snout ends, of which six face to the right and one to the left (pl. 159e).[80] Deities could have been simply repeated in the antechamber, but it is more likely that different manifestations of particular gods were depicted, probably in relation to various temples or chapels dedicated to them in different parts of Egypt. Inscriptions indicate that lesser-known deities such as Udiu and Demdjet, both of whom are mentioned in the Amduat,[81] and Tjai-sep-ef (pl. 160b) were also included in the program.

Because no sequence of more than three figures has been reconstructed, it has not been possible to determine whether or not the different types of deities were arranged in a particular pattern.[82] In the pyramid temple of Senwosret III, human-headed goddesses, human-headed male deities, and animal-headed deities can follow either each other or a deity from any one of the other categories. One might expect that the decision to place particular deities on certain walls had a geographical component, so that the north and east walls included deities who had their cult places to the north of Dahshur, while the gods on the south and west walls had their origins in Middle and Upper Egypt. At least some of the deities facing to the viewer's left, including Bastet[83] and a goddess from Djedet (Mendes; pl. 160c), had their cult places in the Delta, suggesting that the wall with the left-facing deities was either the north or east wall of the room. However, inscriptions for the goddesses Bat[84] and Heket,[85] both of whom had their known cult places to the south of Dahshur, were also found on the wall with left-facing deities. The uppermost register of one of the walls with deities facing right depicts the spirits of Heliopolis, which was located to the north of Dahshur. The top of another right-facing wall includes an inscription for a deity from Ro-setjau, probably a reference to Sokar, which was located in the Memphite area (pl. 159a).[86] Immediately following this inscription is one for Khenty-imentiu, whose cult place was to the south in Abydos.[87] It is therefore possible that a general organizing principle other than geography was used to determine the placement of the deities, and this supposition will be the subject of further research.[88]

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[77] A similar winged disk under deities in procession was found in the pyramid temple of Senwosret I at Lisht (MMA 09.180.55, unpublished).

[78] Jéquier, *Pepi II/2*, pls. 46, 48–54, 56–59.

[79] Nothing of the figure is preserved above the neck, and no remains of the name have been recovered. The name of Amun on the pyramidion of Amenemhat III's Dahshur pyramid was also deliberately defaced during the Amarna period (Arnold, *Amenemhet III*, p. 14, pls. 38–39).

[80] Other pieces that belonged to images of Seth, including his long ears and parts of inscriptions, are also preserved. However, these pieces might originally have been joined to one of the seven snouts and cannot be considered as secure evidence for additional figures.

[81] Erik Hornung, *Das Amduat: Die Schrift des verborgenen Raumes*, pt. 2, *Übersetzung und Kommentar* (Wiesbaden, 1963), p. 134 no. 518 (Demdjet), p. 150 no. 612 (Demdjet), p. 169 no. 736 (Udiu).

[82] For example, in the southern subsidiary entrance of the pyramid temple of Sahure, the male and female fecundities alternate, while the gods in the register above are arranged in a pattern of two males, one female, two males, one female, one male (Borchardt, *Sahu-re*, vol. 2, pls. 29–30).

[83] Hans Bonnet, *Reallexikon der ägyptischen Religionsgeschichte*, 3rd unrev. ed. (Berlin, 2000), pp. 80–82.

[84] Bat's cult place was in Hu in the Seventh Upper Egyptian nome, see Henry George Fischer, "The Cult and Nome of the Goddess Bat," *JARCE* 1 (1962): pp. 7–17; Henry G. Fischer, "Varia Aegyptiaca: *B3.t* in the New Kingdom," *JARCE* 2 (1963): pp. 50–51; Henry G. Fischer, "Bat," *LÄ* I: cols. 630–32.

[85] Heket is known to have had cult places in Abydos (New Kingdom), Antinoupolis, and Hermopolis, see Lászlo Kákosy, "Heqet," *LÄ* II: cols. 1123–24; Hans Bonnet, *Reallexikon der ägyptischen Religionsgeschichte*, 3rd unrev. ed. (Berlin, 2000), pp. 284–85.

[86] Hans Bonnet, *Reallexikon der ägyptischen Religionsgeschichte*, 3rd unrev. ed. (Berlin, 2000), pp. 642–43. Bonnet mentions that in unspecified later periods the Upper Egyptian cities of Abydos and Athribis were also designated Ro-setjau. Christiane M. Coche-Zivie ("Ro-setau," *LÄ* V: cols. 303–9) does not find any secure evidence for placing Ro-setjau outside the Memphite necropolis. For the connection to Sokar, see Catherine Graindorge-Héreil, *Le dieu Sokar à Thèbes au Nouvel Empire*, vol. 1 (Wiesbaden, 1994), pp. 34–36 and passim. See also I.E.S. Edwards, "The Shetayet of Rosetau," in *Egyptological Studies in Honor of Richard A. Parker*, ed. Leonard H. Lesko (Hanover, 1986), pp. 27–36.

[87] Reinhard Grieshammer, "Chontamenti," *LÄ* I: cols. 964–65; Hans Bonnet, *Reallexikon der ägyptischen Religionsgeschichte*, 3rd unrev. ed. (Berlin, 2000), pp. 144–45.

[88] In the pyramid temple of Sahure, the south subsidiary entrance has Upper Egyptian fecundities and deities on the south side, while Lower Egyptian ones appear on the north side (Borchardt, *Sahu-re*, vol. 2, pls. 29–30). There is also evidence that deities were grouped according to geographical criteria in the pyramid temple of Pepi II (Jéquier, *Pepi II/2*, pp. 39–53). However, Jéquier also found discrepancies in this scheme (ibid., p. 47).

One possibility is that deities in Senwosret III's antechamber were grouped according to type. For example, the deity of Ro-setjau and Khenty-imentiu were both associated with necropoli, the west, and the dead. Unfortunately, we know little about the cult temples and chapels that must have existed in every Egyptian town during the Middle Kingdom. In addition, shrines for particular deities may have been erected in unexpected locations.

When complete, the walls of Senwosret III's antechamber must have had the appearance of a papyrus scroll illustrating the Egyptian pantheon spread across the walls. Although the poses of the deities were similar, the variations of male and female, animal and human, along with the different types of dress, would have added variety and color to the repetitive pattern of the registers. The relatively large amount of space devoted to the deities in the small pyramid temple, along with the omission of the bowing officials and cattle slaughtering scenes found in earlier antechambers, shows that this theme was of particular importance for the planners of Senwosret III's decorative program.

Offering Chamber

(pls. 160d, 161c)

The iconography of the offering chamber seems to follow the standard scheme used to decorate this type of room, which is generally rectangular (pp. 49–50). The longer walls are presumed to have been on the north and south sides; they included depictions of processions of offering bearers, piled offerings, offering lists, and the enthroned king receiving these goods at the west ends of the walls. The offering bearers were arranged in at least two registers starting at the bottom of the wall (pl. 160d); above them were a still-undetermined number of registers with piled offerings. Each register of offering bearers had a band of stars above it; the uppermost register of offerings did not have a star band above it, but was placed immediately below a block border. The enthroned king must have faced the offering bearers and presumably had an offering table in front of him, though no identifiable pieces of the table have been found. Standing fecundity figures tying together the plants that symbolize the two lands of Egypt may have been placed beneath the king's throne. The west wall was filled by the false door (pp. 53–54; figs. 16, 18a). The cattle-slaughtering scenes were presumably on the east wall and adjoined at least one wall corner; more piled offerings, or perhaps some of the inscribed vessels and tables (see below), may have been above them.

An unusual feature of Senwosret III's offering chamber was a large section of one or more walls devoted to depictions of vessels: each includes an incised, rectangular royal-name panel inscribed with the names, titles, and epithets of the king, as well as images and epithets of the goddesses Nekhbet and Wadjet (pl. 161c).[89] Vessels of different shapes and sizes are depicted in a variety of colors, which must reflect materials such as gold and faience used to create the original three-dimensional objects.[90] The vessels stand on tables, each of which appears to carry multiple examples of a single type of vessel. The tables are painted to represent materials such as wood, faience, and gold and are inscribed with long incised cartouches that enclose the names, titles, and epithets of the king.

The inscriptions within the royal-name panels are quite similar to those found on the exterior of the pyramid temple (see above), though their sizes can vary considerably depending on the shape of the vessel. With one exception, the right sides of all panels show Nekhbet or Wadjet as a vulture or a cobra facing left and standing on a *nb*-basket balanced on top of a flower. Senwosret III's Horus name, which is placed more or less in the centers of the panels, faces to the right. On the left sides of the panels is a cartouche, and, as was noted above, the Khakaure name occurs much more frequently than the Senwosret name; on some of the larger vessels with wider panels, both cartouches are depicted side by side. Given the fragmentary nature of the evidence, it is not possible to discern a pattern for the choice of Nekhbet or Wadjet in the panels. However, large pieces are preserved in sufficient number to state that Wadjet is depicted much more frequently than Nekhbet and that the goddesses do not alternate either from vessel to vessel or from register to register. In at least a few instances, Hathor and Ptah are substituted for the crown goddesses on the right sides of the panels. At the bottoms of the panels are the word *mry* below the plant and the *di ankh mi Re djet* formula reading from right to left. A few of the panels have references to the *sed*-festival, including the phrase "first *sed*-festival" (p. 134) across the bottom.[91]

The inscriptions on the tables also follow certain patterns. With one exception,[92] all the texts read from right to left, begin with the phrase *ankh Hor* followed by the king's Horus name, and end with variations of the *di ankh mi Re djet* formula.[93] The two-ladies name often, but not always, follows the Horus name. In all instances where the king is described as being beloved by a particular deity, Wadjet is usually invoked, but Nekhbet never is. Ptah and Geb are also occasionally mentioned on the tables. The dominance of Wadjet on both the vessel and table inscriptions cannot be explained at present but may be related to a specific role of the goddess in relation to the offerings or the geographic orientation of the wall on which the vessels and tables were placed. The tables, and therefore the inscriptions, may have been of varying lengths, because their legs do not line up vertically on the fragments that preserve multiple registers.

Several pieces of evidence provide clues as to the placement of the inscribed vessel-and-table reliefs within the offering chamber. Surprisingly, the seeming consistency in the orientation of the inscriptions may not be very helpful; an examination of actual inscribed vessels reveals that there is an overwhelming tendency for the Horus name on these objects to face to the right, as is also the case on the reliefs.[94] The largest block featuring the vessels and tables thus far recovered also includes a small piece of a striped reveal from a doorframe (p. 53) and the remains of the ceiling stars that were on the soffit (pl. 161c; the remains of the doorframe and soffit are not visible in the photo). Two other pieces have wider star bands that correspond to those believed to originate from the tops of the walls (p. 139). The placement of a star band above the uppermost register of the vessel-and-table motif must indicate the vessels and tables carried a different meaning than the rest of the offerings, since the uppermost register of the piled offerings lacks a star band. Narrow black groundlines are the only division between the registers of vessels and tables. Three pieces show that the tables and vessels extended down to the wall base. Another piece contains part of a table with a vertical block border from a wall corner or doorframe to the right. The information about the position of the vessel-and-table motif can be summarized as follows: the decoration seems to have extended from the top of the wall to the bottom, included at least one wall corner, and appeared above a door.

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[89] De Morgan found a relief depiction of an inscribed vessel (*Dahchour* I, pp. 57–59, fig. 127).

[90] Inscribed objects can also be included on the frise d'objects on coffins. For example, see Günter Lapp, *Typologie der Särge und Sargkammern von der 6. bis 13. Dynastie*, Studien zur Archäologie und Geschichte Altägyptens 7 (Heidelberg, 1993), pl. 5d. The possible relationship between the inscribed vessels in relief and the frise d'objects on coffins, which often feature a number of vessels, has yet to be explored.

[91] For actual Old Kingdom vessels that mention the *sed*-festival, see Anne Minault-Gout, "Sur les vases jubilaires et leur diffusion," in *Études sur l'Ancien Empire et la nécropole de Saqqâra dédiées à Jean-Philippe Lauer*, ed. Catherine Berger and Bernard Mathieu (Montpellier, 1997), pp. 305–14, figs. 1, 3, 4.

[92] One fragment depicts a seemingly unique table with a text reading from left to right. At the far right end, Nekhbet stands on a *nb*-basket and offers a *shen*-sign to the Horus name of the king, which runs down the leg of the table; the inclusion of Nekhbet and a vertical inscription on the table leg are features not found on other tables. A similar table, or perhaps even the left side of the same one, is illustrated in De Morgan, *Dahchour* I, p. 51, fig. 112.

[93] A relief with parts of two tables was used by De Morgan to identify the owner of the pyramid complex, see here p. 46.

[94] The texts in the royal-name panels on actual vessels can vary widely, but the Horus name almost always faces right. For examples, see Flinders Petrie, *Stone and Metal Vases* (London, 1937), pls. 2A, 11, for an exception to the rightward orientation see pl. 11 no. 938; Fr. W. Von Bissing, *Steingefässe*, Catalogue Général des Antiquités Égyptiennes du Musée du Caire Nos. 18065–18793 (Vienna, 1904), p. 147 and pl. 1 no. 18694, p. 157 no. 18735; Christine Lilyquist, *Egyptian Stone Vessels: Khian through Tuthmosis IV* (New York, 1995), p. 23, no. 6, fig. 17, see pp. 15–17 for a discussion of vessel inscriptions. Anne Minault-Gout, "Sur les vases jubilaires et leur diffusion," in *Études sur l'Ancien Empire et la nécropole de Saqqâra dédiées à Jean-Philippe Lauer*, ed. Catherine Berger and Bernard Mathieu (Montpellier, 1997),

The probable location of the door with the vessels on its lintel can be determined thus: Since the east walls of offering chambers in pyramid temples do not have doors, it can be excluded. The east end of the north wall of the offering chamber could well have had a door that led into storerooms on the north side of the temple. However, parallels in other pyramid temples[95] suggest that the offering chamber side of the north doorway would have had a rounded jamb and not the flat reveal found on this block. Placing the block on the east end of the south wall correctly locates the reveal of the doorframe. However, it is difficult to imagine the entire south wall dominated by the vessel-and-table motif, since this wall must have also included offering bearers, an offering list, etc. Another difficulty is caused by the observation that the vessels and tables continued down to the wall base, since one would expect that the lowest registers of wall decoration in the offering chamber contained offering bearers (north and south walls) and cattle slaughterers (east wall).[96]

Several possible conclusions can be reached from this complex evidence of scene placement. First, the inscribed vessel-and-table motif may have appeared on different walls of the offering chamber, despite the consistency in the orientation of the inscriptions. Second, the motif could have extended over one or more corners to adjoining walls. For example, the subject could have covered the east wall and extended to the east ends of the south and/or north walls. Third, it is possible that the vessels and tables, including the block with the doorframe, decorated one of the temple's storerooms. Arguing against this idea are one or perhaps two blocks that include both tables and pieces of piled offerings, though it is also possible that storeroom decoration could include depictions of food offerings along with more precious commodities. Finally, it is conceivable that the vessel-and-table motif was spread among one or more storerooms as well as the offering chamber.

Decoration Around Interior Doors

(pl. 161)

An estimate of the number of doors in the interior of the pyramid temple is difficult and depends on which reconstruction one chooses. Such a calculation will not be attempted here. Identifiable at present are several examples of door decoration, some of which were discussed above in connection with the chambers from which they are thought to originate (p. 53). In the square antechamber, the area over one of the doors included a depiction of a winged sun disk, above which were deities in procession, while another may have had enthroned deities (p. 139; pl. 160b). The area above the south door in the offering chamber, or perhaps a door in a storeroom, was covered with depictions of vessels and tables (see above and pl. 161c).

In one or more unspecified rooms, the decoration of the doorframe was composed of the king's titulary and the crown goddesses in a manner that parallels the inscriptions found on the exterior door (pp. 136–37). Three large pieces of door lintels have been reconstructed; they may belong to separate lintels or they may originally have been part of one huge block. Each has the same broad side borders found on the exterior lintel. Above the star bands at the top, there is a wide space, followed by a block border that is sunken below the level of the main relief surface; vertically oriented, sunken block borders are also found outside the broad vertical borders. One piece from the left side of a lintel includes part of the king's Horus name oriented toward the center of the lintel (pl. 161a). Facing the Horus name is part of a coiled Wadjet sitting on a *nb*-basket that is, in turn, balanced on top of a papyrus plant; Wadjet's epithets are inscribed behind her. Another group of restored fragments, preserving only the top of the Horus name and part of the snake and sun disk behind it, originates from the upper right side of a lintel. The third large fragment comes from the bottom right side of a lintel and includes the bottom of the Horus name, with the damaged remains of a beautifully painted palace facade, and the base of a papyrus plant to the left (pl. 161b).

Pieces of interior doorframes that were presumably placed below the lintels have rounded jambs through which the visitor would exit a room as he or she moved inward through the progression of ritual spaces. The doorframes seem to have had two columns of the king's titulary, with the hieroglyphs oriented toward the opening of the door. Preserved pieces include the phrases *nswt-bity* and *sa Re* as well as parts of both of Senwosret III's cartouches (pl. 161d). The columns of inscription are framed by the same broad borders as the lintels.

THE SOUTH TEMPLE

(pls. 162–63)

Because of the need to concentrate our studies on the enormous number of pieces found in the pyramid temple, the

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pp. 305–14, figs. 1, 3, 4; Christiane Ziegler, "Sur quelques vases inscrits de l'Ancien Empire," in *Études sur l'Ancien Empire et la nécropole de Saqqâra dédiées à Jean-Philippe Lauer*, ed. Catherine Berger and Bernard Mathieu (Montpellier, 1997), pp. 461–89, figs. 5, 7, 8, 10, 11, 13; Barbara G. Aston, *Ancient Egyptian Stone Vessels: Materials and Forms* (Heidelberg, 1994), pl. 2a; Dorothea Arnold, "Amenemhat I and the Early Twelfth Dynasty at Thebes," *MMJ* 26 (1991): p. 12, figs. 15–17. For a general discussion of royal-name panels on vessels and other objects, see Dorothea Arnold and Elena Pischikova, "Stone Vessels: Luxury Items with Manifold Implications," in *Egyptian Art in the Age of the Pyramids*, exh. cat. (New York, 1999), pp. 125–28, with further references. The rightward orientation of the Horus name in royal-name panels can be altered in architectural settings. On the columns found in the pyramid temple of Sahure, the Horus name can face in either direction (Borchardt, *Sahu-re*, pp. 44–45, figs. 44–45, pl. 9).

[95] Such as Unis (Labrousse, *Ounas*, figs. 32–33), Teti (Lauer, *Téti*, pls. 16B, 35), Pepi II (Jéquier, *Pepi II/2*, pl. 1).

[96] As in the offering chamber of Pepi II (Jéquier, *Pepi II/2*, pls. 61–62, 81–82, 97).

excavation of the south temple relief fragments has been interrupted since the close of the 1994 season. It is hoped that once the work in and around the pyramid temple is completed, the excavation of the south temple can be resumed. For the architecture of this structure, see pages 97–105 and plates 134–49.

Several difficulties arise in studying the south temple relief fragments. First, the enormous structure does not have any known precedents in the Old or Middle Kingdoms. Rather, the size and shape of the building suggest that it is a forerunner of New Kingdom mortuary temples. However, the iconography of the relief fragments thus far recovered does not closely correspond to what we know of the decoration of New Kingdom mortuary temples, which were, at least in the later New Kingdom, dominated by elaborate military scenes and depictions of the pharaoh making offerings to individual deities or small groups of them. Like Senwosret III's pyramid temple, all that remains of the south temple is its brick subfoundation and architectural elements, which are not sufficient to define individual units within the building. Finally, the densest concentration of fragments has been found in large debris mounds outside the temple proper in squares N–O/13. Since this area is on a downward slope that leads toward the probable site of Snefru's north valley temple and cultivated land, it may well have been a staging area for the destruction and quarrying process, meaning that the fragments found here could originate from anywhere in the temple or even from other structures in the complex. Because of these considerations, it is not possible at this point in the research to define individual architectural spaces and the types of scenes that decorated their walls. Instead, we can only suggest the broad iconographic themes illustrated within the temple and in a few instances propose the section of the temple from which they might have originated.

The most completely excavated section of the temple is its extreme west end (squares K/15–19, L/19), where two subjects predominate: the offering ritual and large-scale rituals involving the king and various deities. Pieces from the offering ritual include the king seated before an offering table (pl. 162c–d), offering bearers, cattle slaughtering, and piled offerings; one small piece has parts of two inscribed vessels similar to those found in the pyramid temple (see above). The inclusion of all of these subjects indicates that there was a standard offering chamber near the back of the temple. Fragments with scenes from the offering ritual were also found in square L/15 and in the debris mound in squares N–O/13.

Large-scale scenes must have existed that showed the king and various deities enacting rituals. Two small fragments seem to have pieces of joined ankh-signs of the type found in purification scenes (p. 138), but otherwise the kinds of rituals depicted are unknown. With the exception of the purification scene, it is also not possible to ascertain if the king is the recipient of the action, as is the case in traditional pyramid temple iconography, or if the king is performing rituals for the deities, as is common in New Kingdom mortuary temples. The large-scale deities include at least two with ram heads (pl. 162b)[97] and a Seth. A lifesize head and torso of Senwosret III wearing the white crown must also come from one of these ritual scenes. Several fragments from the northwest corner of the temple depict the king wearing a beaded apron.[98] A block from square K/16 includes part of a relief depiction of a pavilion under which the king must have been sheltered during a ritual.

Several pieces indicate the presence of military scenes. One large fragment, found in square K/16, includes part of the half-lifesize torso of the king covered by a falcon corselet, bending over a group of foreign enemies he is presumably about to smite (pl. 163c). Preserved are the overlapping, bent elbows of the foreigners, who offer a feather to the king as a sign of submission.[99] Of equal scale is a block from nearby square L/15 with the overlapping, bent legs of prisoners from the same or a similar smiting scene. A depiction of a bound Libyan captive was found in the debris mound in squares N–O/13. A small fragment with a beautiful image of a Nubian archer was found in square Q/12, which is just south of the south wall of the so-called palace section of the south temple (pl. 163b).[100] The wide distribution of fragments depicting foreigners and soldiers could either indicate that such scenes were placed in more than one part of the temple or that the broken fragments were widely scattered after the destruction of a single room or wall.

A number of fragments found in the south temple indicate that the decorative program included a major section devoted to representations of the *sed*-festival. Pieces with this subject matter have been found both on the south side of the temple near the west end (square L/15) and in the debris mound outside the south wall of the temple (squares N–O/13). Perhaps the *sed*-festival scenes originate from somewhere toward the back of the temple on the south side or in the center. Most interesting and unusual is an approximately half-lifesize depiction of Senwosret III wearing the white crown and a brightly colored *sed*-festival garment (pl. 163a).[101] Contrary to the belief that *sed*-festival cloaks are generally white from the Middle Kingdom on,[102] the body of the cloak is a bright blue-green, while the edges of the collar and the front opening are ornamented with borders consisting of a wider center stripe of yellow with black spots (leopard skin) surrounded on either side by narrower stripes of blue-red-blue. Emerging from the front of the cloak and under the hands of the king is a projection composed of six narrow stripes, each one of which is painted with falcon feathers, followed by leopard skin, and then more falcon feathers. The projection is on a slight downward angle, suggesting that the king was standing.[103] The bottoms of two scepters remain in the king's hands. Unfortunately, the king's face was deliberately destroyed with several slashes of a broad chisel, but enough remains of the eyebrow and the cosmetic line behind the eye to show that they were blue-green, an indication of the otherworldly aspect assumed by the king during the *sed*-festival.[104] Depictions of *sed*-festival cloaks with feather and leopard skin projections are rare, and the only secure earlier example is a small-scale priest in the sun temple of Niuserre.[105] None of the parallels for the projection preserve their original paint, and no other *sed*-festival cloaks have the same blue-green color and striped border decoration.[106]

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[97] For one, see Arnold and Oppenheim, "Senwosret III," p. 55, fig. 13.

[98] For a discussion of beaded aprons, see Diana Craig Patch, "A 'Lower Egyptian' Costume: Its Origin, Development, and Meaning," *JARCE* 32 (1995): pp. 93–116.

[99] For other examples of foreign prisoners holding feathers in smiting scenes, see Emma Swan Hall, *The Pharaoh Smites His Enemies: A Comparative Study*, Münchner Ägyptologische Studien 44 (Munich, 1986), figs. 12, 18, 23, 29, 55, 70.

[100] Arnold and Oppenheim, "Senwosret III," pp. 55–56, fig. 14. A larger fragment with running soldiers was discovered by Gustave Jéquier along the causeway and is now in the Egyptian Museum (JdE 51978; Gustave Jéquier, *Douze ans de fouilles dans la nécropole Memphite, 1924–1936* [Neuchâtel, 1940], pp. 136–37, fig. 39; idem, "Rapport préliminaire sur les fouilles exécutées en 1924–1925 dans la partie méridionale de la nécropole memphite," *ASAE* 25 [1925]: p. 59).

[101] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1993–1994," *Orientalia* 64 (1995): p. 265.

[102] Jocelyn Gohary, *Akhenaten's Sed-festival at Karnak* (London, 1992), p. 207, n. 58.

[103] Compare to depictions of Amenhotep III in the tomb of Kheruef, where the projection in front of the king slopes down slightly when he stands and angles sharply upward when he is seated (The Epigraphic Survey, *The Tomb of Kheruef: Theban Tomb 192*, University of Chicago Oriental Institute Publications, vol. 102 [Chicago, 1980], pls. 24–26, 41–42, 46).

Small fragments found in the debris mound in squares N–O/13 indicate one or more larger, lifesize depictions of the king wearing the same garment. Other fragments that could originate from depictions of the *sed*-festival include a finely rendered Wepwawet standard,[107] a priest or official carrying a flail, and a lifesize back foot, leg, and tail of a king, who is either running the courses or smiting enemies.[108] It thus seems likely that the south temple contained some sequence of scenes depicting the rites of the *sed*-festival along the lines of those found in the sun temple of Niuserre, and in the temples of Amenhotep III at Soleb, of Akhenaten at Karnak, and of Osorkon II at Bubastis.[109]

Two fragments seem to belong to a small-scale representation of the Egyptian seasons.[110] Since both were found in the debris mound in squares N–O/13 and they are similar in scale and subject matter, it is probable that they belonged to the same scene. The smaller of the two preserves part of the hair and the headdress of a medium-sized depiction of the Akhet (inundation) season.[111] The larger piece includes most of a tree and a small hill with bushes that sit directly on top of a narrow band of inscription, which mentions different types of fish (pl. 162a). The carving, particularly that of the graceful tree, is detailed and exquisite.[112] Perhaps the south temple contained a room depicting the seasons of the Egyptian year somewhat similar to that found in the sun temple of Niuserre.[113]

Two large blocks discovered north of the east side of the temple in the area of the original outer enclosure wall (squares R/19 and R/20) include sections of large-scale horizontal texts that appear to originate from an exterior inscription. The smaller of the two (R/20) preserves the phrase "beloved by the [deity] of the temple." The larger block (R/19) is inscribed with Senwosret III's two-ladies name, followed by *sa Re* and most of the Senwosret cartouche (pl. 163d).[114] The possibility that these blocks originate from the pyramid temple and were dragged to their findspots during the destruction process cannot be excluded, but the style of the reliefs differs somewhat from that of the securely identified pyramid temple exterior inscriptions. In addition, the inscriptions are contained completely on one block, while the horizontal exterior inscriptions on the pyramid temple tend to be cut horizontally and divided between two blocks. No identifiable pieces of panels have been found, and it may be that these elements were left unfinished (p. 101; pl. 146c).

The fundamental, unanswered question about the south temple remains: why was it built? For some reason that is difficult to grasp precisely but must involve some evolution in religious practice and the nature of kingship, the pyramid temple was no longer considered sufficient to guarantee the king's afterlife or the stability of the institution of kingship itself. Given the extremely fragmentary and scattered nature of the evidence to date, it is not possible either to define the south temple's decorative program or to come to a clear conclusion as to what differentiated it from the pyramid temple. Both temples seem to have had offering chambers that included the standard elements found in such rooms. The pyramid temple had a room devoted to depictions of deities in procession, and there may have been similar scenes in the south temple.[115] Both temples also had depictions of boats, though they may have belonged to different types of scenes. Large-scale depictions of the king and various deities enacting rituals, including the purification ritual, were found in both structures. But since the exact nature of the rituals cannot be defined in either temple, it is not possible to decide whether or not they correspond to each other. Scenes involving captives and the smiting of foreigners are definitely part of the south temple's iconographic program,[116] though it is also possible that foreigners were depicted in the pyramid temple (p. 139). The most distinct iconographic difference between the two temples is the depictions of the *sed*-festival found in the south temple. Whether these scenes, and indeed the creation of the temple itself, are related to an actual *sed*-festival enacted for Senwosret III remains unknown (for a brief discussion of the controversy surrounding the length of Senwosret III's reign, see pp. 15, 116–17).

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[104] Body parts made of precious materials are associated with the gods or other supernatural beings, who are said to have flesh made of gold, bones of silver, and hair of lapis lazuli. The gods were also said to be "wrapped in turquoise," an idea that may be the source for the blue-green color of the cloak. For the materials that composed the bodies of deities, see Dimitri Meeks and Christine Favard-Meeks, *Daily Life of the Egyptian Gods*, trans. G. M. Goshgarian (Ithaca, New York, 1996), pp. 57–58 with further references. In the story of "The Shipwrecked Sailor," the eyebrows of the giant snake are ". . . of real lapis lazuli" (Miriam Lichtheim, *Ancient Egyptian Literature: A Book of Readings*, vol. 1, *The Old and Middle Kingdoms*, [Berkeley, 1973], p. 212).

[105] Friedrich Wilhelm von Bissing and Hermann Kees, *Das Re-Heiligtum des Königs Ne-Woser-Re (Rathures)*, vol. 2, *Die Kleine Festdarstellung* (Leipzig, 1923), pl. 6. Examples of striped garments with features similar to the projections that emerge from the cloak of Senwosret III are found on depictions of sphinxes from the valley temples of Sahure (Borchardt, *Sahu-re*, vol. 2, pl. 8) and of Pepi II (Jéquier, *Pepi II*/3, pls. 15–17).

[106] The best-preserved examples are found in the tomb of Kheruef, where Amenhotep III wears this type of costume; unfortunately no paint remains on the garments (The Epigraphic Survey, *The Tomb of Kheruef: Theban Tomb 192*, University of Chicago Oriental Institute Publications, vol. 102 [Chicago, 1980], pls. 24–26, 41–42, 46). A text in the tomb states, "It was His Majesty who did this in accordance with writings of old. (Past) generations [of] people since the time of ancestors had never celebrated (such) rites of the jubilee" (ibid., p. 43). A fascinating possibility is that the "writings of old" mentioned here at least in part refer to the south temple of Senwosret III, which was still standing and visited at this time (see here p. 100). For a discussion of the revival of the *sed*-festival under Amenhotep III, see Donald B. Redford, *Pharaonic King-Lists, Annals and Day-Books: A Contribution to the Study of the Egyptian Sense of History*, SSEA Publication IV (Mississauga, Ontario, 1986), pp. 179–88.

A damaged depiction of Amenhotep III seated in a kiosk and wearing a short enveloping cloak with a diamond pattern and a feather projection is found in the tomb of Surer (Torgny Säve-Söderbergh, *Private Tombs of Thebes*, vol. 1, *Four Eighteenth Dynasty Tombs* [Oxford, 1957], pl. XXXI).

An example of a short cloak with a similar projection rendered with inlaid stones is found on the so-called coronation pectoral of Tutankhamun (Cyril Aldred, *Jewels of the Pharaohs* [London, 1971], p. 220, pl. 99; Hans Wolfgang Müller and Eberhard Thiem, *Gold of the Pharaohs* [Ithaca, New York, 1999], p. 179, fig. 380, p. 184). The garment worn by Tutankhamun on the pectoral may not be a true *sed*-festival cloak, see Diana Craig Patch, "Tutankhamun's Corselet: A Reconsideration of Its Function," *BES* 11 (1991–92): p. 66.

A similar garment may have been worn by Amenemhat I in a relief from his pyramid temple at Lisht (unpublished Metropolitan Museum excavation photo L 12–13:103).

Numerous examples exist of so-called royal plume dresses in the Eighteenth Dynasty. It is possible that when the king is shown wearing the *sed*-festival garment with the projection, he is actually wearing a plume dress that is mostly covered by the traditional short *sed*-festival cloak. For plume dresses, see Tomasz Giza-Podgórski, "Royal Plume Dress of XVIII Dynasty," *MDAIK* 40 (1984): pp. 103–21. An early Fourth Dynasty example of a plume dress is found in the so-called valley temple of Snefru at Dahshur (Ahmed Fakhry, *The Monuments of Sneferu at Dahshur*, vol. 2, *The Valley Temple*, pt. 1, *The Temple Reliefs* [Cairo, 1961], p. 131, fig. 150). Feather garments and their connection to the *sed*-festival are discussed in Cyril Aldred, "The 'New Year' Gifts to the Pharaoh," *JEA* 55 (1969): pp. 73–81 and John Larson, "The Hebsed Robe and the 'Ceremonial Robe' of Tut'ankhamun," *JEA* 67 (1981): pp. 180–81.

[107] Arnold and Oppenheim, "Senwosret III," p. 54, fig. 12.

[108] The back leg and foot of the king are identical in both smiting and running scenes.

[109] For a comparative discussion of these scenes, see Jocelyn Gohary, *Akhenaten's Sed-festival at Karnak* (London, 1992), pp. 9–25 and passim, with further references.

[110] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1993–1994," *Orientalia* 64 (1995): p. 265.

[111] For another personification of Akhet, see Elmar Edel and Steffen Wenig, *Die Jahreszeitenreliefs aus dem Sonnenheiligtum des Königs Ne-user-re* (Berlin, 1974), pl. 1. Personifications of the seasons are rare in Egyptian art (William Kelly Simpson, "Two Middle Kingdom Personifications of Seasons," *JNES* 13 [1954]: pp. 265–68).

[112] Arnold and Oppenheim, "Senwosret III," pp. 55–56, fig. 15.

[113] Elmar Edel and Steffen Wenig, *Die Jahreszeitenreliefs aus dem Sonnenheiligtum des Königs Ne-user-re* (Berlin, 1974). The decoration of the sun temple of Niuserre at Abu Ghurob consisted of scenes depicting a sequence of *sed*-festival rituals (Friedrich Wilhelm von Bissing and Hermann Kees, *Das Re-Heiligtum des Königs Ne-woser-re [Rathures]*, vol. 2, *Die Kleine Festdarstellung* [Leipzig, 1923]; Hermann Kees, vol. 3, *Die Grosse Festdarstellung* [Leipzig, 1928]) and the seasons. Is it possible that Senwosret III's south temple incorporated rituals and iconography that were borrowed from the Fifth Dynasty sun temples? New Kingdom mortuary temples included courts that were devoted to the sun cult, but no connection between these courts and the much-earlier sun temples has ever been suggested. The iconography of these later rooms is completely different (Jürgen Osing, *Der Tempel Sethos' I. in Gurna*, vol. 1, *Die Reliefs und Inschriften* [Mainz, 1977], pp. 38–53, pls. 24–36).

[114] Jean Leclant and Gisèle Clerc, "Fouilles et travaux en Égypte et au Soudan, 1992–1993," *Orientalia* 63 (1994): p. 387, fig. 28.

THE QUEENS' CHAPELS

(pl. 164)

Excavation has revealed the remains of seven chapels belonging to queens and princesses of the court of Senwosret III: north and east chapels at pyramids 8 and 9, and east chapels at pyramids 2, 3, and 4. Pyramid 7 does not appear to have had any chapels, while the chapel of pyramid 1, if it existed, has been totally destroyed (pp. 60, 84–85).

The possibility that pyramids 1–4 had north chapels cannot be excluded, and additional excavation work will be necessary to provide a definitive answer to this question. One would expect that the owners of pyramids 1–4, who included at least one queen, would have wanted their monuments to receive the same traditional north and east chapels that had been granted to the owners of pyramids 8 and 9. On the other hand, the space between the north pyramids and the original north outer enclosure wall[117] may have been deemed too narrow to accommodate chapels as well as the rituals that would have taken place in and around them. If, in fact, these north chapels were omitted, one must also see their absence as a conscious choice made by the builders, rather than just an eventuality imposed by the lack of space. Had the builders chosen to erect smaller pyramids, adequate room would have remained for the additional chapels. Instead, when confronted with the choice between a more imposing pyramid or two chapels, the builders and their patrons favored a larger pyramid, a monument of greater visibility and presumably prestige.

As is to be expected, the quantity and the quality of the fragments recovered from the seven chapels vary widely. Little was preserved from chapels 9 north,[118] 2, and 4. Most numerous were the pieces found in and around the chapel of 8 north, while significant amounts were also discovered at chapels 8 east, 9 east, and 3. The fact that the quality also varies among the chapels is not surprising when one considers that the pyramids were erected at different times (pp. 58, 75, 117). However, the artistic quality does not seem to have been strictly determined either by the chronological development of the complex or by the status of the pyramid's owner. Fragments found at pyramid 9 are of high quality, as would befit the decoration of a monument belonging to one of Senwosret III's chief queens. Yet pyramid 8, which appears to have served as a cenotaph dedicated to the mother of Senwosret III, has relief decoration that is generally of lesser quality. For example, surfaces are generally flatter, and details are rendered with simple incised lines rather than the more complex arrangement of higher and lower surfaces that characterize the best work in the complex. Hieroglyphs often lack internal details, and at least some of the star bands at the top of the registers of the offering list were not carved but only painted.[119] The remains from chapel 4 appear to be the work of highly skilled artists, perhaps even the same group who worked at pyramid 9, while chapels 2 and 3 are of good to moderate quality.

In the pyramid temple area, relief fragments have been found that correspond in scale and iconography to the decoration of the chapels dedicated to the royal women. These pieces must have been deposited there during the destruction process, but their place of origin remains uncertain. One fairly large, weathered block from the top of a wall, excavated during the 2000 season, includes part of a *kheker*-frieze, a block border, and the uppermost register of an offering list. According to Isabel Stünkel, who is studying the offering lists, among the known chapels the fragment could only originate from the east chapel of pyramid 4, because it is the only one that may have lacked a band of stars between the *kheker*-frieze/block border and the list. However, Stünkel and Oppenheim have observed that the few offering list fragments found in the chapel of pyramid 4 appear to be of much higher quality than the block found in the pyramid temple. The block could originate from an as yet unidentified north chapel of pyramids 1–4, but there is also the possibility of an unknown subsidiary pyramid or pyramids somewhere in the area of the pyramid temple. Since test trenches dug southeast of the pyramid temple did not reveal the remains of any structures (p. 75), the only possible location for these monuments would be the relatively unexplored terrain northeast of the pyramid temple. Because of the high concentration of post-New Kingdom surface burials, it has not yet been feasible to investigate this area.

Preliminary study of the program of the chapels indicates that the decoration was confined to those elements that one would expect in an offering chamber.[120] It appears likely that each chapel had only one decorated rectangular room, but there may have been small, undecorated side rooms or storage chambers.[121] Because the north chapel of pyramid 8 preserves the greatest number of fragments and large blocks, it has been essential to the reconstruction of the decorative scheme. The east chapel of pyramid 9 preserves the largest number of pieces from the offering list.[122] Since the fragments recovered from the less well-preserved chapels seem to have the same subjects and overall layout as those found in chapels 8 north and 9 east, we have reached the preliminary conclusion that the decoration in all chapels was quite similar.

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[115] A few pieces of deities rendered at about the same scale as those found in the antechamber of the pyramid temple have been found in squares N–O/13, Q/12, L/18, and possibly L/19.

[116] Perhaps in conjunction with Senwosret III's military exploits? For discussions of military undertakings during his reign, see Delia, "Senwosret III," 24–126; Gae Callender, "The Middle Kingdom Renaissance (c. 2055–1650 B.C.)," in *The Oxford History of Ancient Egypt*, ed. Ian Shaw (Oxford, 2000), pp. 165–67; Claude Vandersleyen, *L'Egypt et la vallée du Nil*, vol. 2, *De la fin de l'Ancien Empire à la fin du Nouvel Empire* (Paris, 1995), pp. 90–95.

[117] The original north outer enclosure wall appears to have remained standing after the construction of pyramids 1–4, see here p. 22.

[118] The area around the north chapel of pyramid 9 requires further excavation, and more fragments may be preserved.

[119] It should be noted that the workmanship is not uniformly of lesser quality. The representations of the queen and the figures, inscriptions, and objects immediately around her display greater use of modeling, variation in surface height, and finer details.

[120] The study of the decorative program of the chapels and attempts to piece together the fragments have been undertaken by Isabel Stünkel of the University of Bonn and Adela Oppenheim.

The exterior lintels of the chapels were covered by a two-register, horizontally oriented inscription. The upper register consisted of a large winged sun disk with symmetrically arranged inscriptions related to Horus the Behedite on either side of the wing tips. Below, the titles, epithets, and name of the queen or princess were symmetrically arranged on either side of a central ankh-sign.[123] One fragment found near the west side of pyramid 4 includes the Horus name of Senwosret III and appears to derive from a doorframe; it is possible that the chapels had doorframes that included the name of the king, but it may also be the case that this fragment originates from the north chapel of the king (p. 64).

The ceilings of the chapels were vaulted across their widths and covered with the typical motif of yellow stars on a blue ground (pp. 60, 65, 83). Because the curved vaults would have met the horizontal wall tops at each short end of the room, tympana with curved tops and horizontal bottoms were used to fill these spaces.[124] Each chapel had two tympana carved from single large blocks that were covered with symmetrical inscriptions listing the epithets, titles, and, most important, the names of the royal women.[125] Remains of tympana found in the east chapel of pyramid 3 (Itakayet) and the north chapel of pyramid 8 (Weret I) allowed us to assign these structures to their appropriate owners. The block from chapel 8 north, which was the most complete found, is estimated to have originally been about 1.84 m long, a figure that must correspond to the total width of the chapel (p. 59; pl. 164d).

One large block from the interior of chapel 8 north includes part of a curved doorjamb, to the right of which is a depiction of cattle slaughtering that fills the lowermost register (pl. 164c). To the right of the scene is the block border of the wall corner followed by a rough section that was originally hidden behind the wall surface. It seems most likely that the chapels were entered through their short end walls, meaning that there were doors in the east walls of the east chapels and the north walls of the north chapels. Fragments found in the east chapel of pyramid 9 indicate that the slaughtering scenes stretched over two registers; they probably were placed on both sides of the door. Pieces from both chapels of pyramid 8 show that representations of piled offerings were placed over the door, and it is presumed that they began immediately above the slaughtering scenes.

The long side walls of the chapels were arranged with the standard scenes found in offering chambers. The bottom row was filled by a procession of offering bearers that continued at least until the space under the throne of the royal woman (pl. 164a). Above, in the center of the wall, were two registers of piled offerings. The upper part of the wall was dominated by the offering list, which was arranged in four registers.[126] Small-scale scenes of the offering ritual, which occupied a rectangular space, would have been at the outer end of the lowest register of the offering list and at the outer end of the upper register of the piled offerings.[127] Additional registers with piled offerings were placed in the narrow, 21 cm space between the end of the offering list and the corner block border. At the inner end of the wall, the queen or princess sat enthroned before a standard offering table (pl. 164b); above her were several columns of inscriptions that included her name, titles, and epithets. When the study of the fragments is complete, the 3.41 m estimated lengths of the chapels should be verifiable (p. 59). It is presumed that the chapel walls in front of the pyramid had false doors (pp. 76, 83). Fragments of statues and altars were found in the remains of some of the structures (pp. 65, 76).

An interesting aspect to the decoration of the chapels of the royal women is that they do little to proclaim the status of their owners. While the queens and princesses were favored with elaborate underground tombs and impressive pyramids, their cult chapels were small and contained only those iconographic elements (offerings, offering bearers, offering list, cattle slaughterers) that one would expect in the tombs of private individuals. In the chapel decoration, the high positions of their owners were made known only through the inscriptions and by means of subtle elements such as the thrones on which the women sit and the details of their costumes. The contrast between the elaborate aboveground temples erected for Old Kingdom royal women and the diminutive chapels found here may be another reflection of the shifts in religious thought made manifest in the architecture of the pyramid complex of Senwosret III.

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[121] Queens' pyramids of the Old Kingdom generally had multiroom temples with more complicated decorative programs, while those of the Middle Kingdom were much smaller, see Peter Jánosi, *Die Pyramidenanlagen der Königinnen* (Vienna, 1996), pp. 123–80; Miroslav Verner, *Abusir III: The Pyramid Complex of Khentkaus*, with contributions by Paule Posener-Kriéger and Peter Jánosi (Prague, 1995), pp. 150–63; Audran Labrousse and Jean-Philippe Lauer, *Les complexes funéraires d'Ouserkaf et de Néferhétepès*, (Cairo, 2000), vol. 1, pp. 146–62, vol. 2, figs. 40, 42, 68b, 252, 341–42; 351–75, pls. 31–34a; Arnold, *Senwosret I*, vol. 3, pp. 19–40.

[122] Offering list fragments that probably originate from queens' chapels were also found by Perring (Vyse, *Gizeh*, opposite p. 63, figs. 5–7; figs. 8–10 may also originate from one or more queens' chapels) and De Morgan (*Dahchour* I, p. 76, figs. 178–80, possibly from pyramid 9 north).

[123] A similar doorframe with two lines of inscription was found in the temple of Senwosret III at Medamud (M. F. Bisson de la Roque, *Rapport sur les fouilles de Médamoud [1930]*, Fouilles de l'Institut français d'archéologie orientale du Caire [année 1930], vol. 8 [Cairo, 1931], pl. 7).

[124] For an illustration of a tympanum meeting a wall, see Lauer, *Téti*, p. 14, fig. 3.

[125] De Morgan (*Dahchour* I, p. 77, fig. 182) found parts of two tympana belonging to a "daughter of the king" somewhere on the north side of the pyramid complex.

[126] Based on the analysis of Isabel Stünkel. For parallels, see Jéquier, *Pepi II*/2, pls. 61, 81; N. de G. Davies, *The Tomb of Antefoker*, The Theban Tomb Series, Second Memoir (London, 1920), pl. 32; Ricardo A. Caminos and T.G.H. James, *Gebel es-Silsilah*, vol. 1, *The Shrines*, Archaeological Survey of Egypt, Thirty-first Memoir (London, 1963), pl. 38.

All the offering lists seem to conform to Winifried Barta's A/B type with only slight variations (*Die altägyptische Opferliste*, MÄS 3 [Berlin, 1963]).

[127] What must have been a large block found by Perring in an unspecified area of the pyramid complex probably originates from a chapel of a queen or princess (Vyse, *Gizeh*, fig. 6 opposite p. 63). The relief includes parts of the bottom two registers of the offering list, with the offering ritual occupying part of the lower register. Below are two registers of piled offerings, the uppermost of which also has a depiction of the offering ritual. At the bottom of the block are parts of two offering bearers. Because the temples dedicated to the king have figures that are much larger in scale than those in the chapels of the royal women, a single block from a structure dedicated to the king could not have included so many registers. The block corresponds to the reconstructions of the offering lists being studied by the present excavators.

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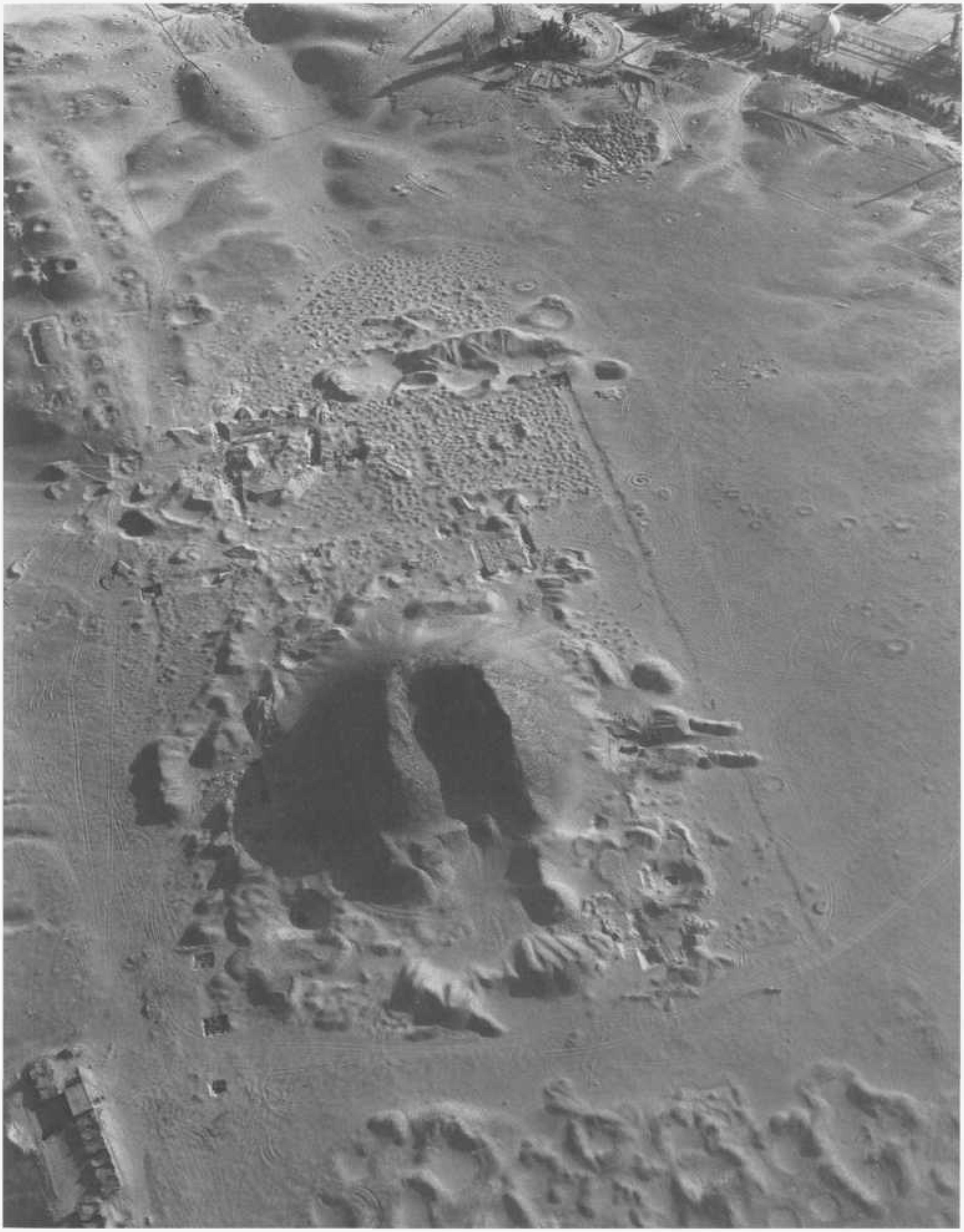
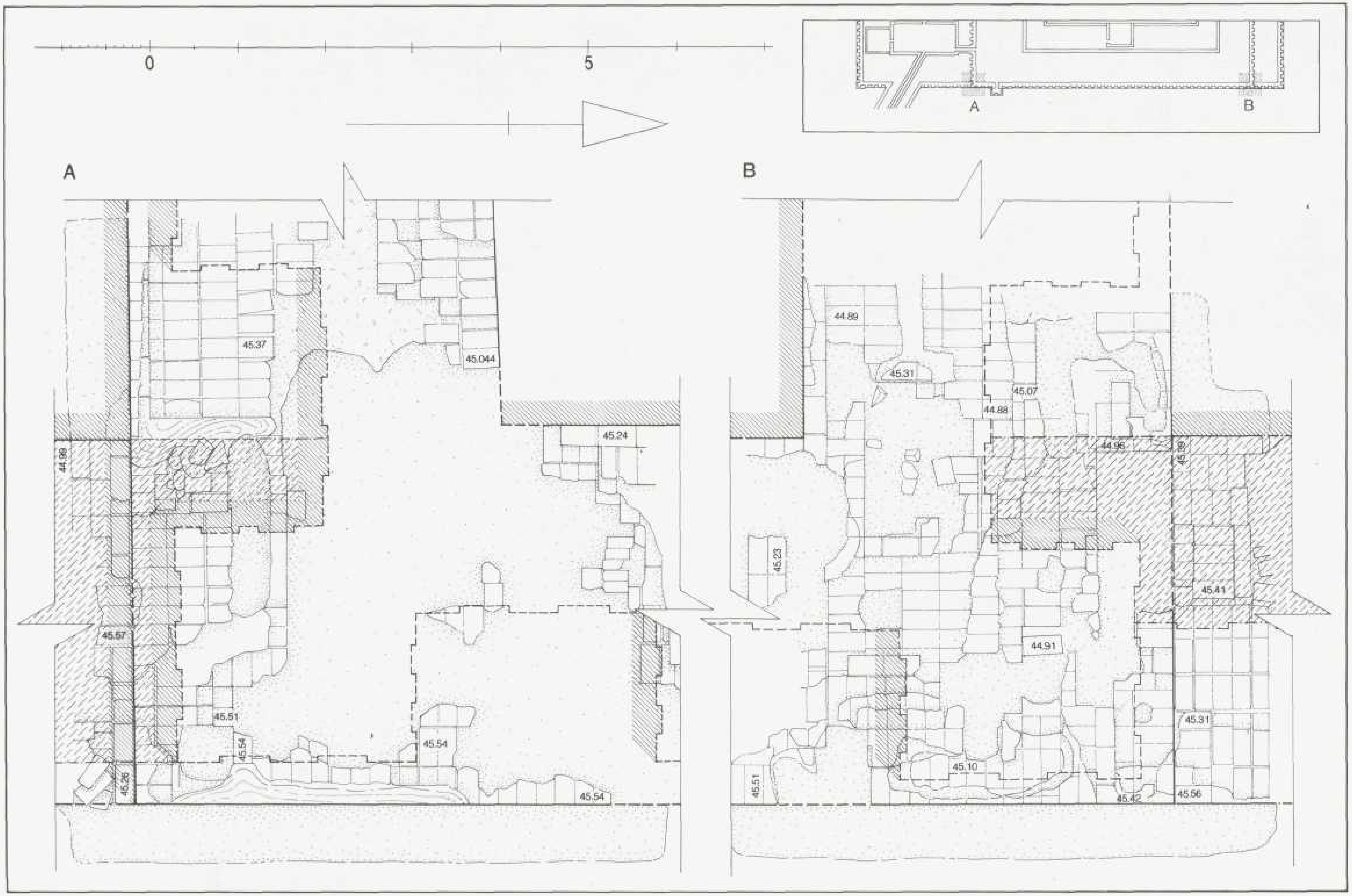
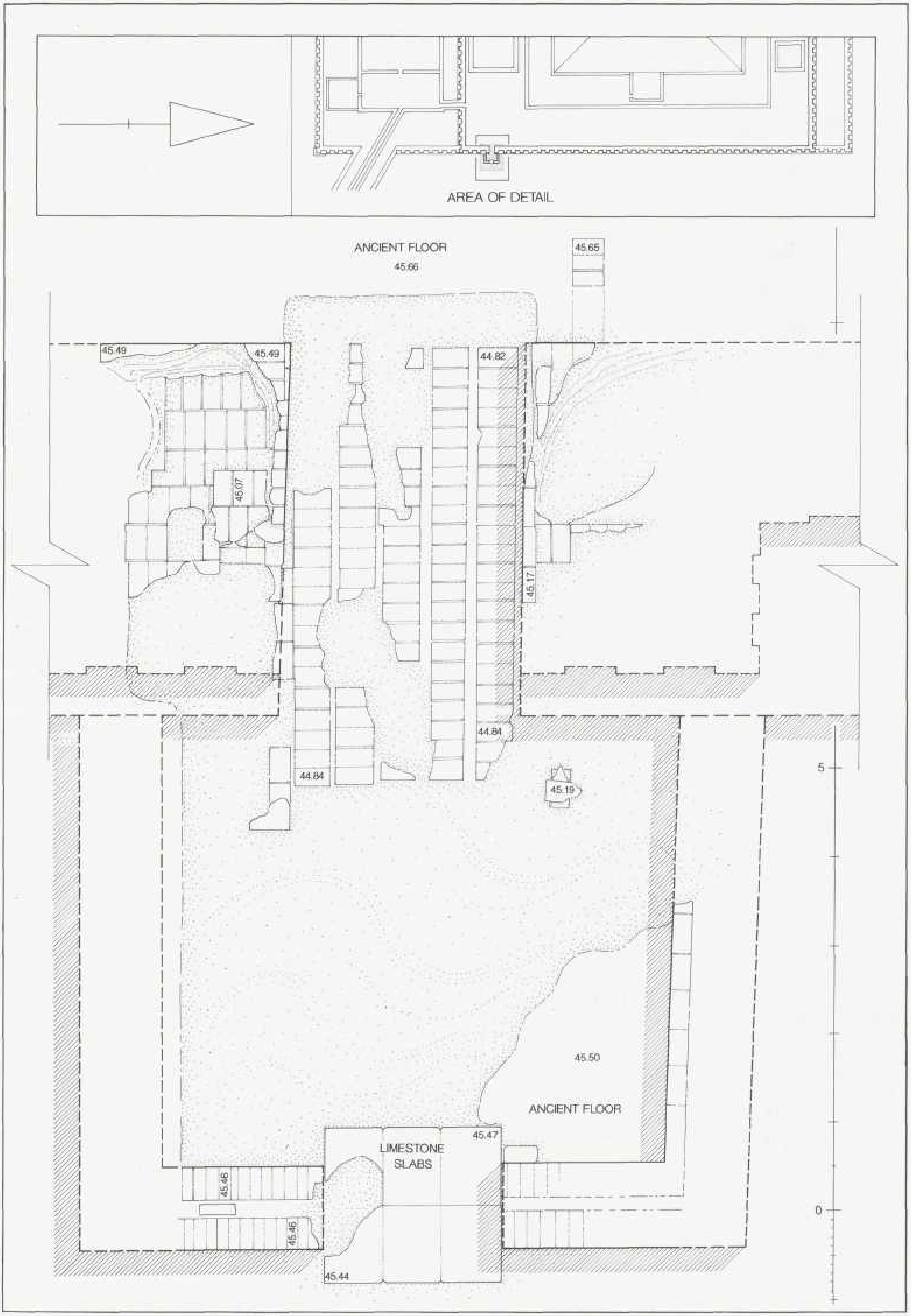
PLATES 1–164



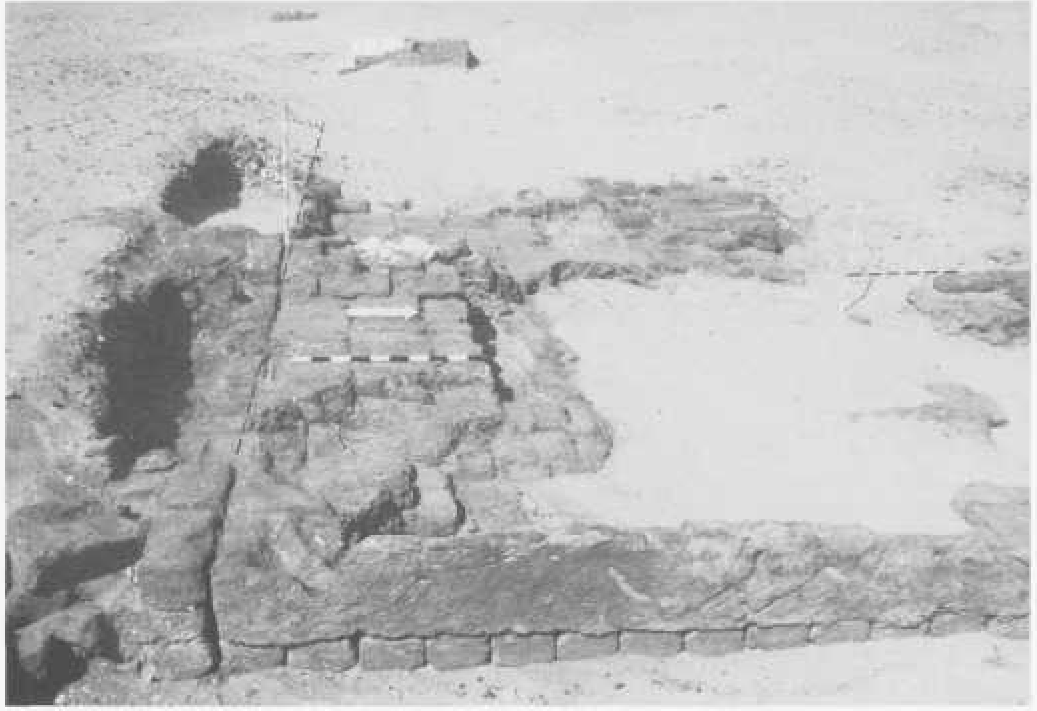
Pl. 1. Aerial view of the pyramid complex of Senwosret III. The top of the photo is south. Photo Marilyn Bridges, New York (1993).



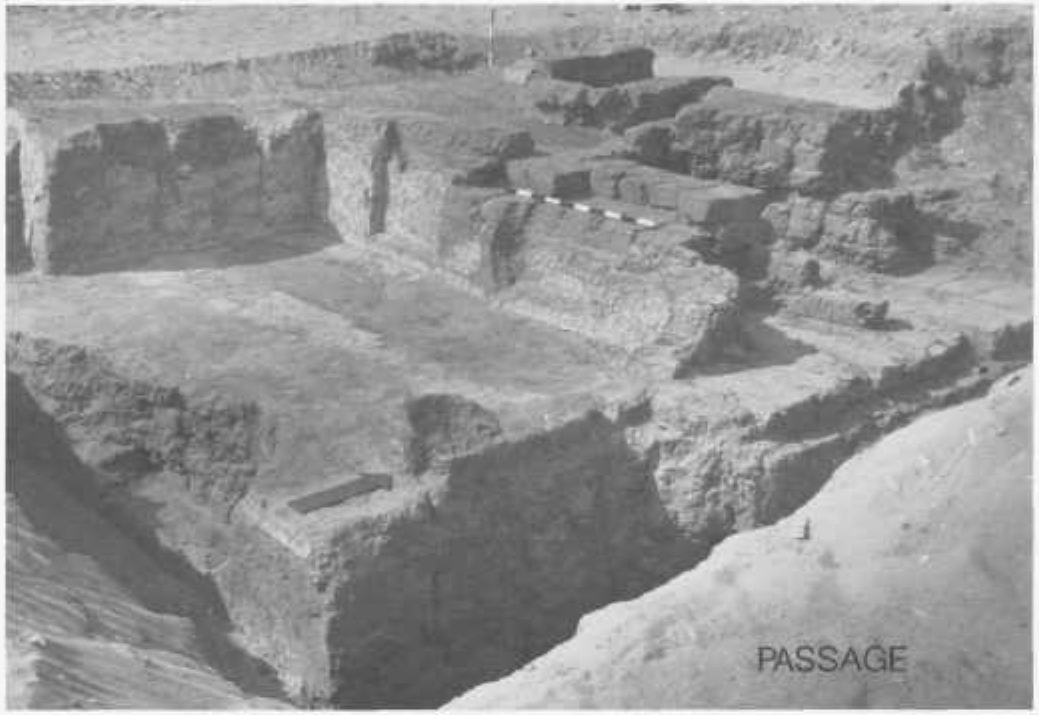
Pl. 2. Juncture of the southeast [A] and northeast [B] corners of the original outer enclosure wall, and the north and south extensions to the east wall. Scale 1:50. Drawings R.V. from drawings by D.A.



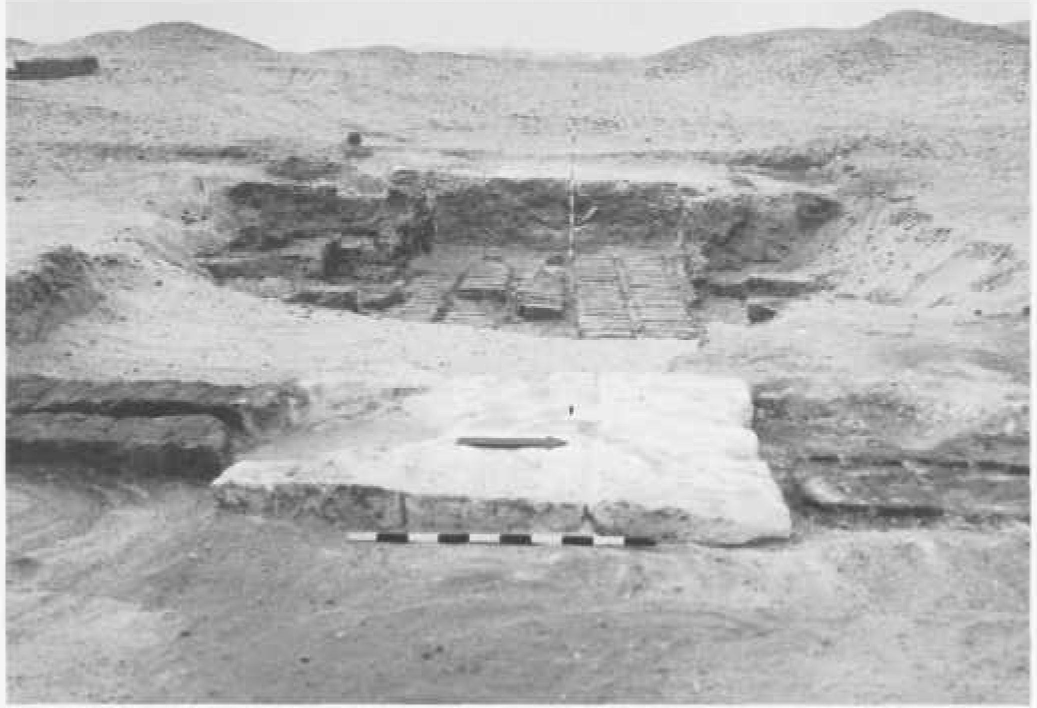
Pl. 3. Plan of the original main gate and *avant-porte* at the south end of the east side of the original outer enclosure wall. Scale 1:50. Drawing R.V. from drawings by D.A.



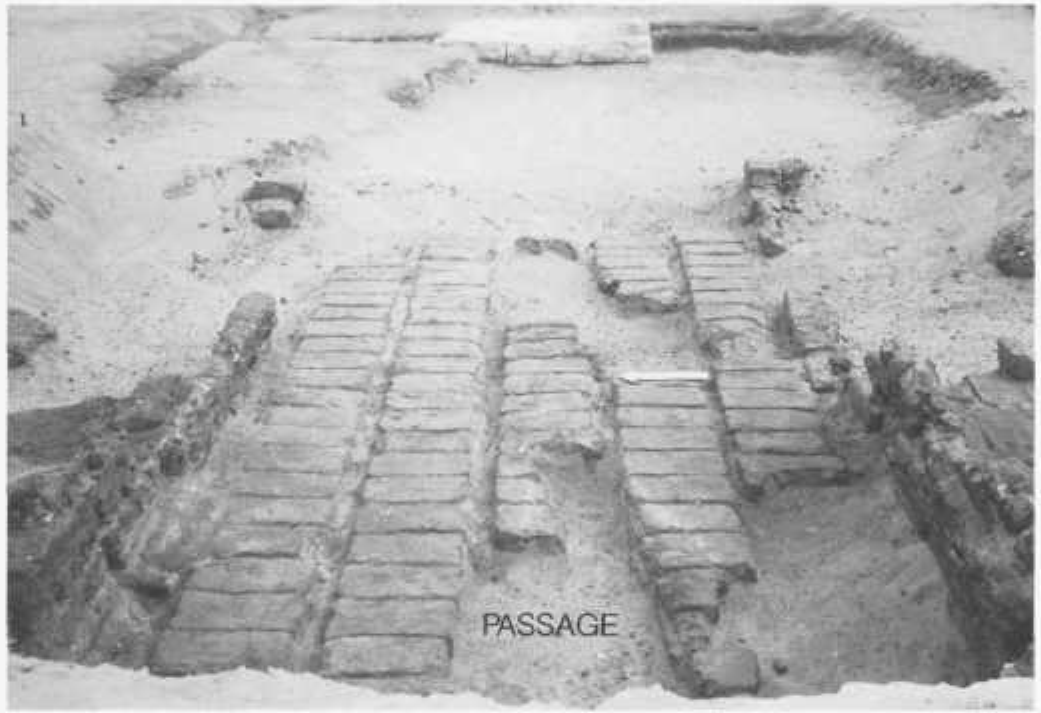
Pl. 4a. Juncture of the southeast corner of the original outer enclosure wall and the south extension to the east wall. Photo A.O. (DH 93:74).



Pl. 4b. West side of the later passage through the original south outer enclosure wall, facing northwest. Photo D.A. (DH 92:398).

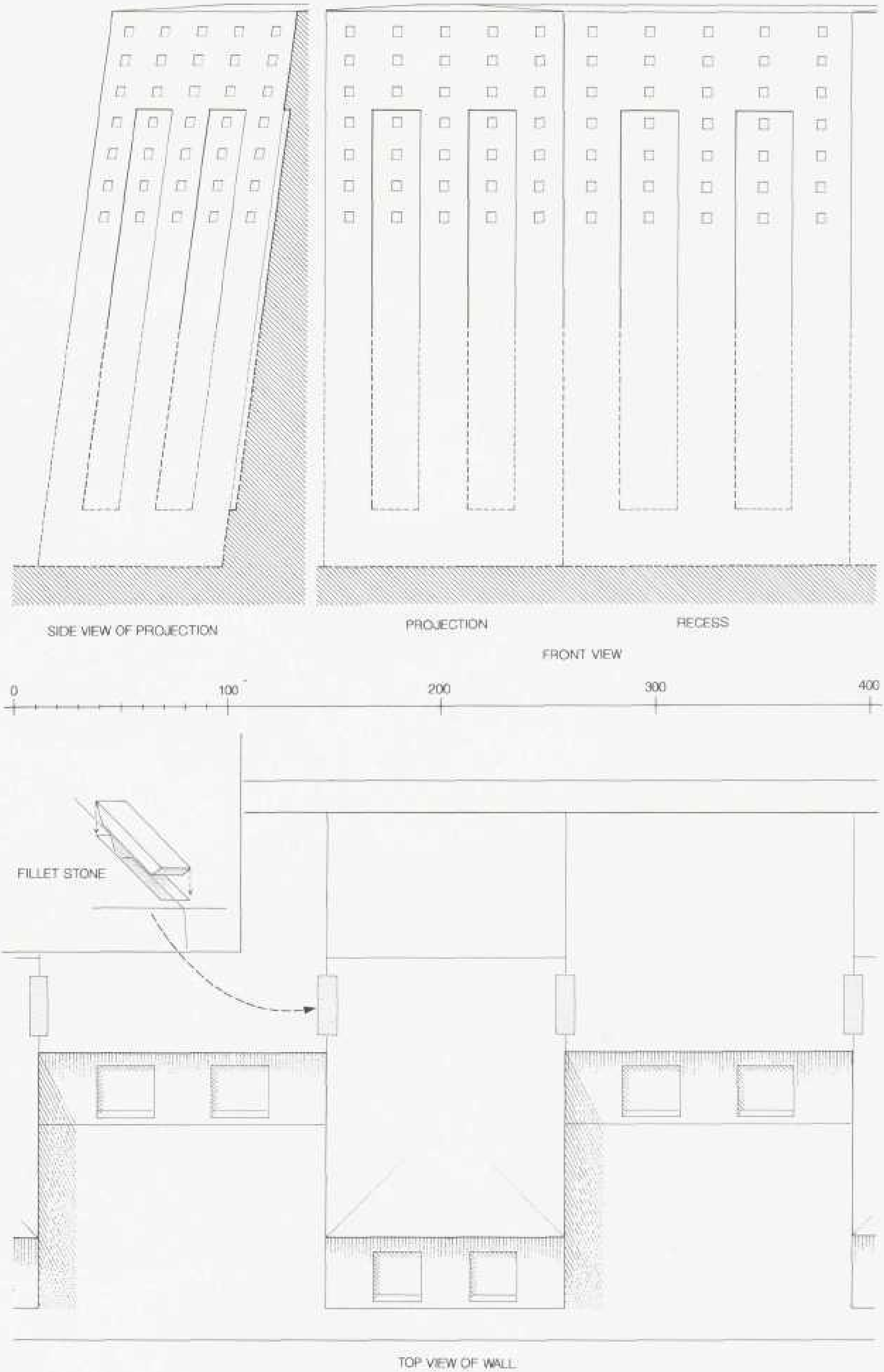


Pl. 4c. The foundation of the *avant-porte* in front of the original main gate at the south end of the east side of the original outer enclosure wall, facing west. Photo D.A. (DH 93:487).

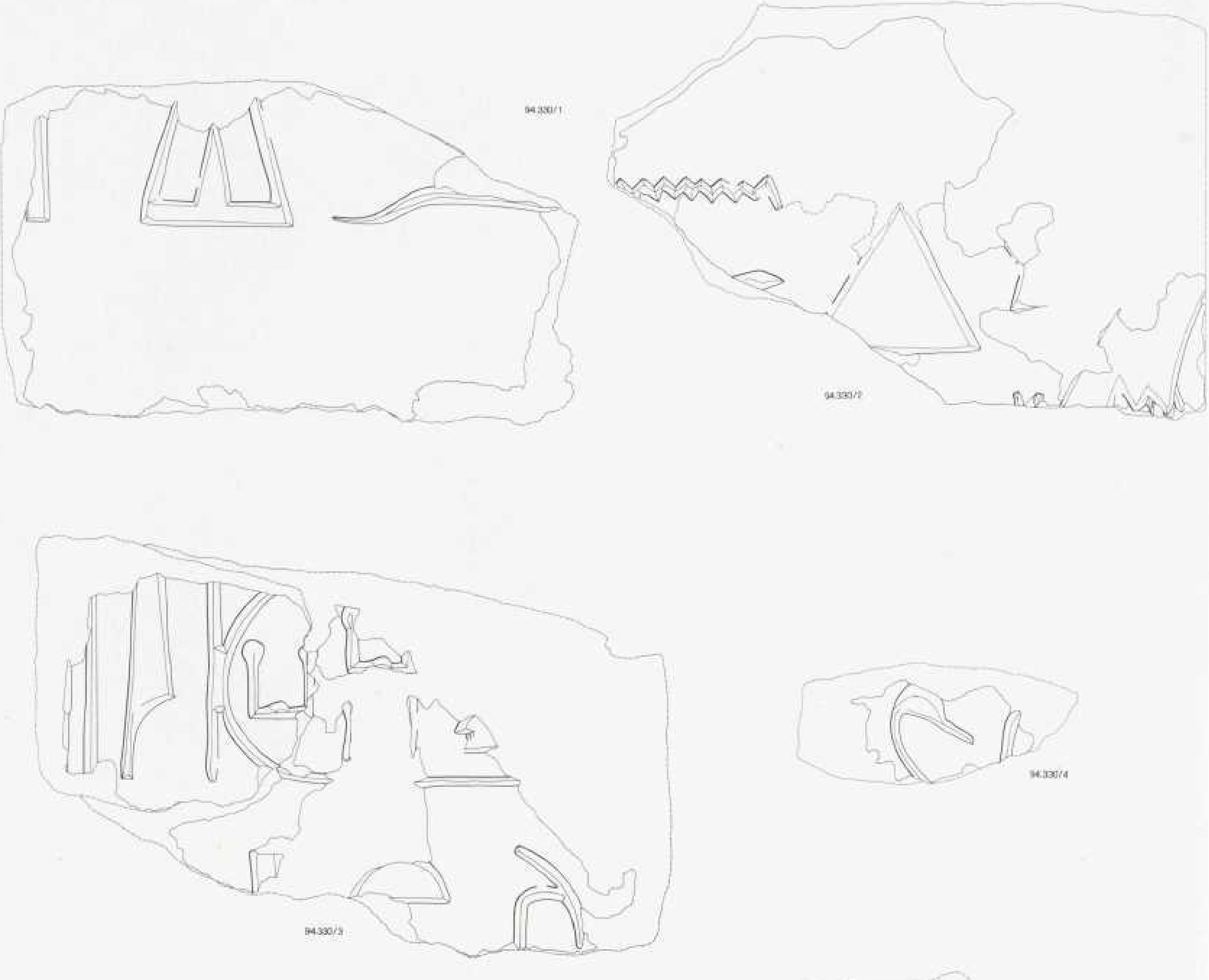


Pl. 4d. The foundation of the original main gate at the south end of the east side of the original outer enclosure wall, facing east. Photo D.A. (DH 93:490).

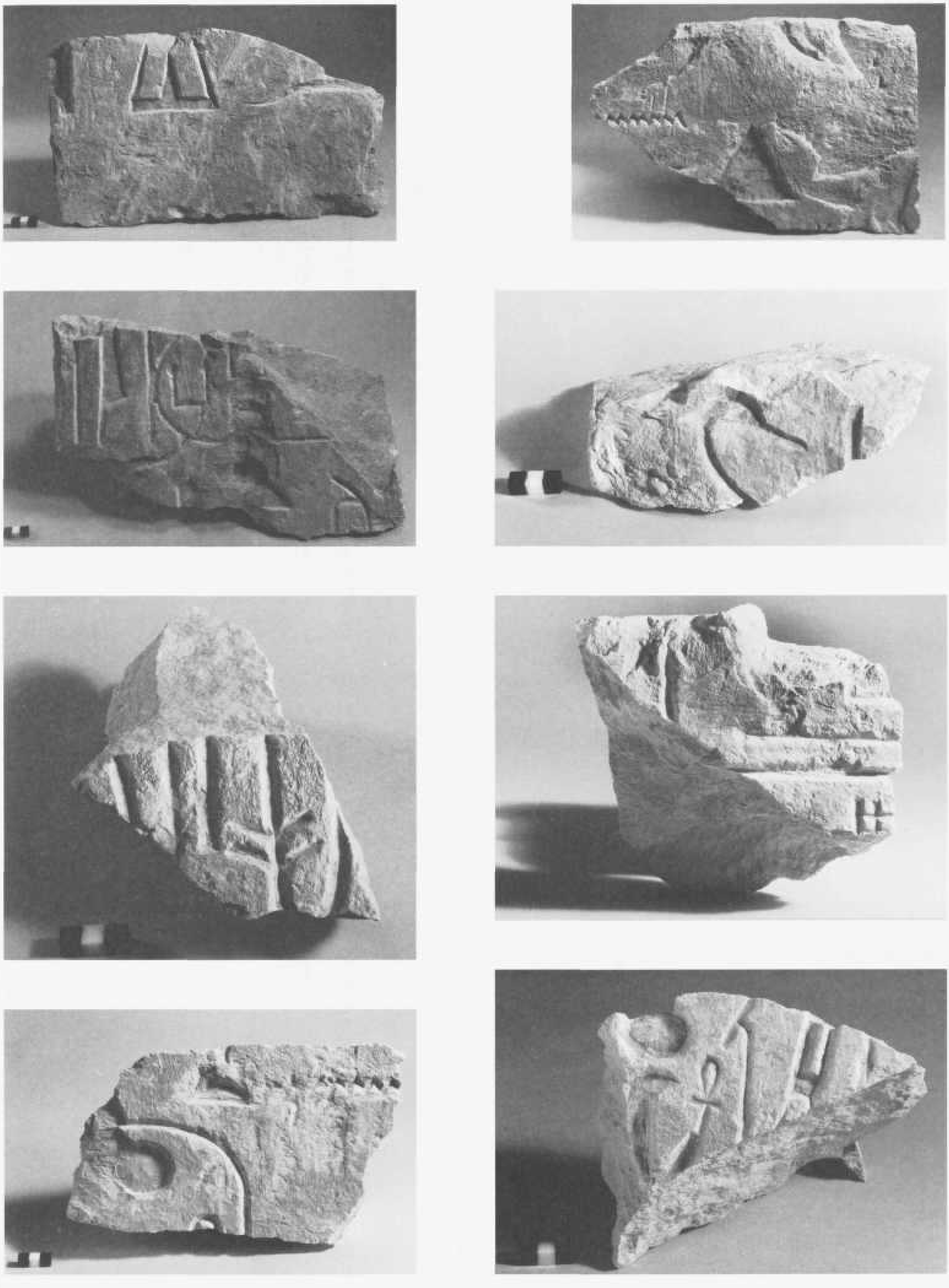
PLATE 5



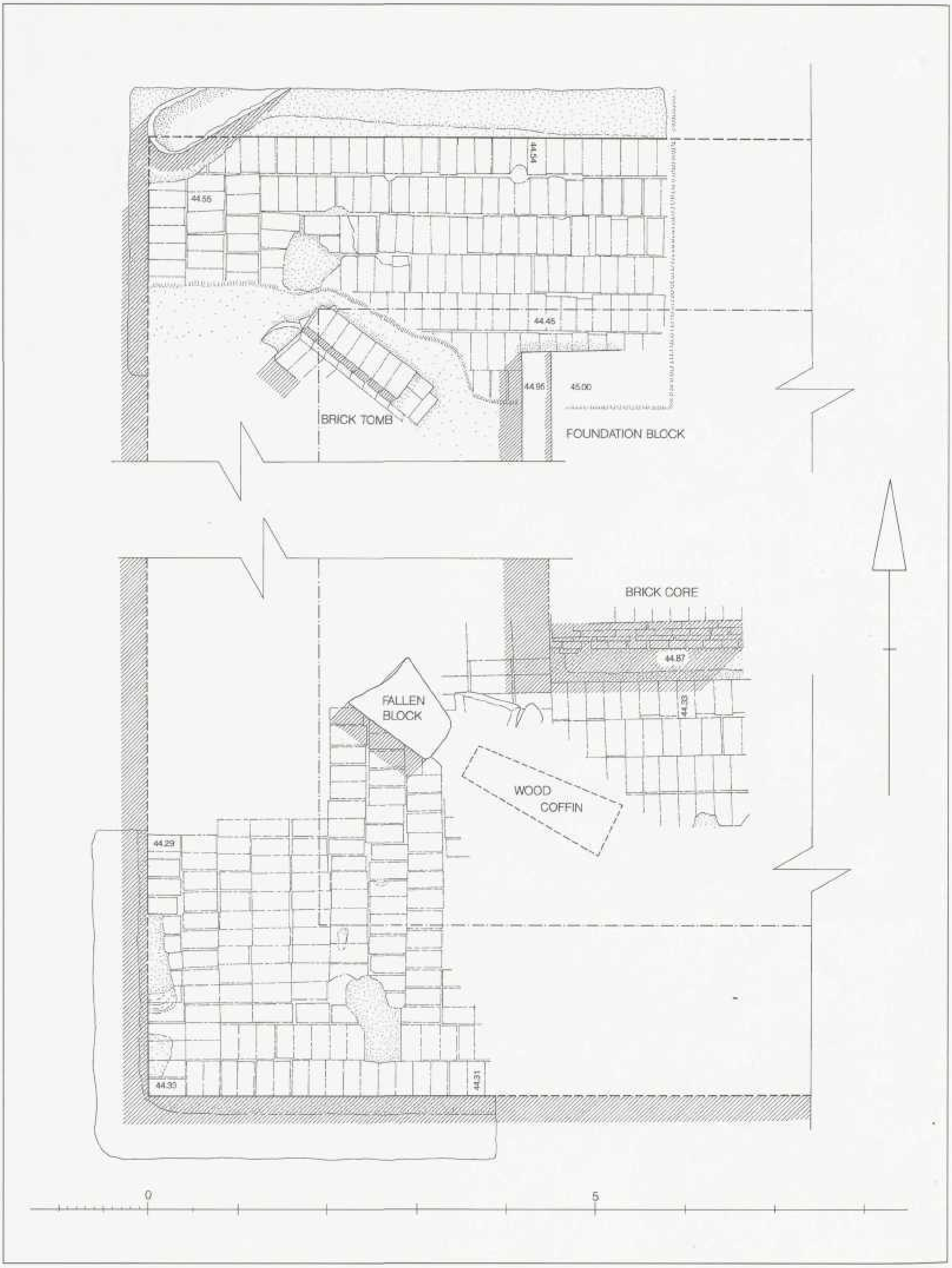
Pl. 5. Reconstructed front and side views (upper) and top view (lower) of the stone inner enclosure wall. Scale 1:25. Drawing D.A.



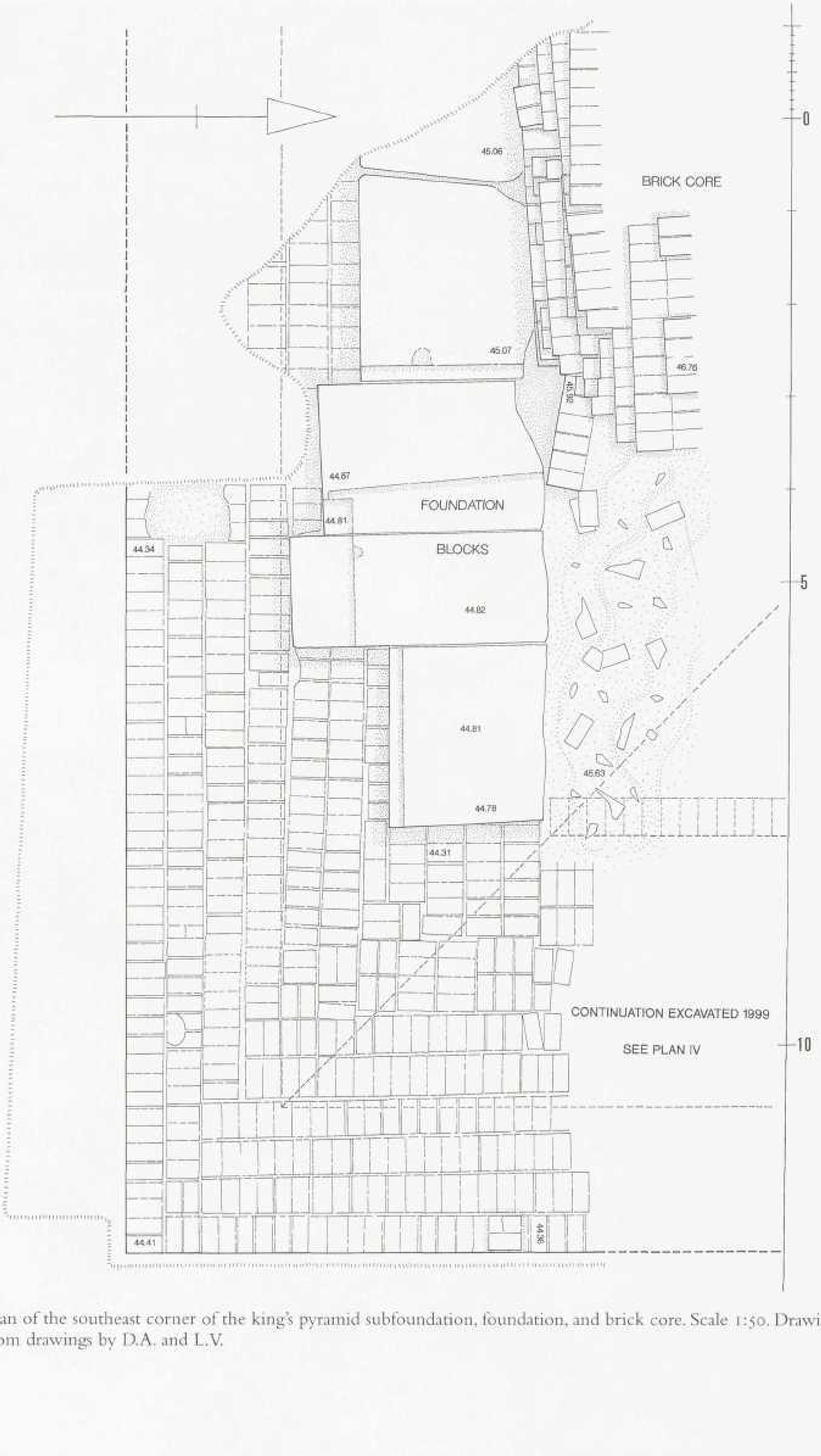
Pl. 6. Fragments of the Ramesside inscription of Prince Khaemwaset. Scale 1:4. Drawings T.S. after drawings by T.S., B.G., and J.L.



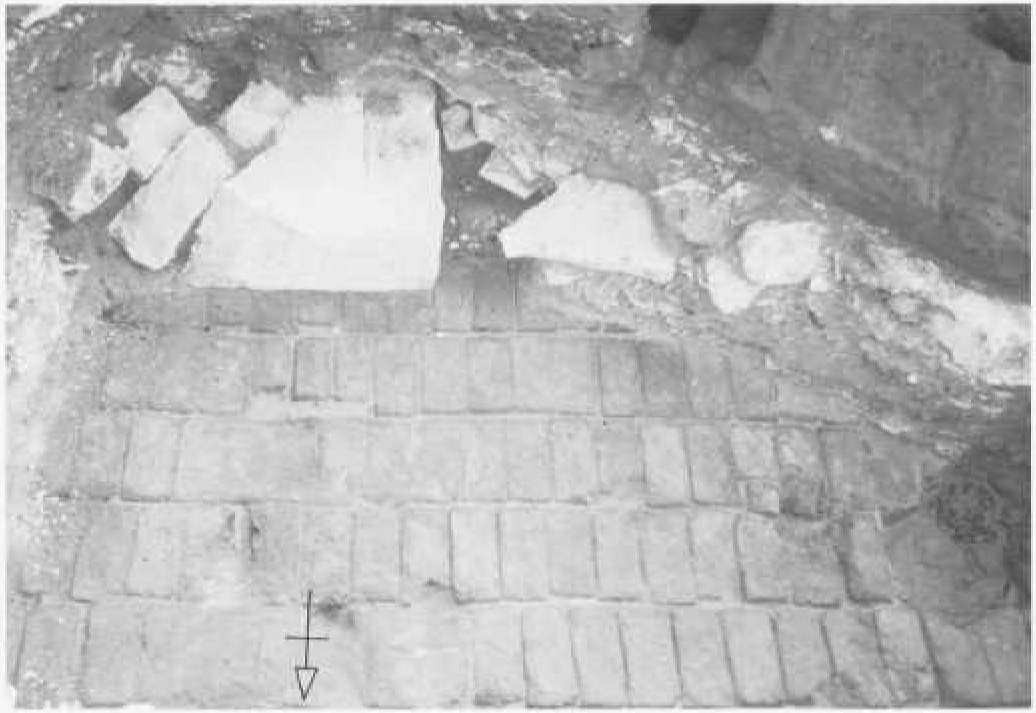
Pl. 7. Fragments of the Ramesside inscription of Prince Khaemwaset. Photos E.T. (DH 96:521–28).



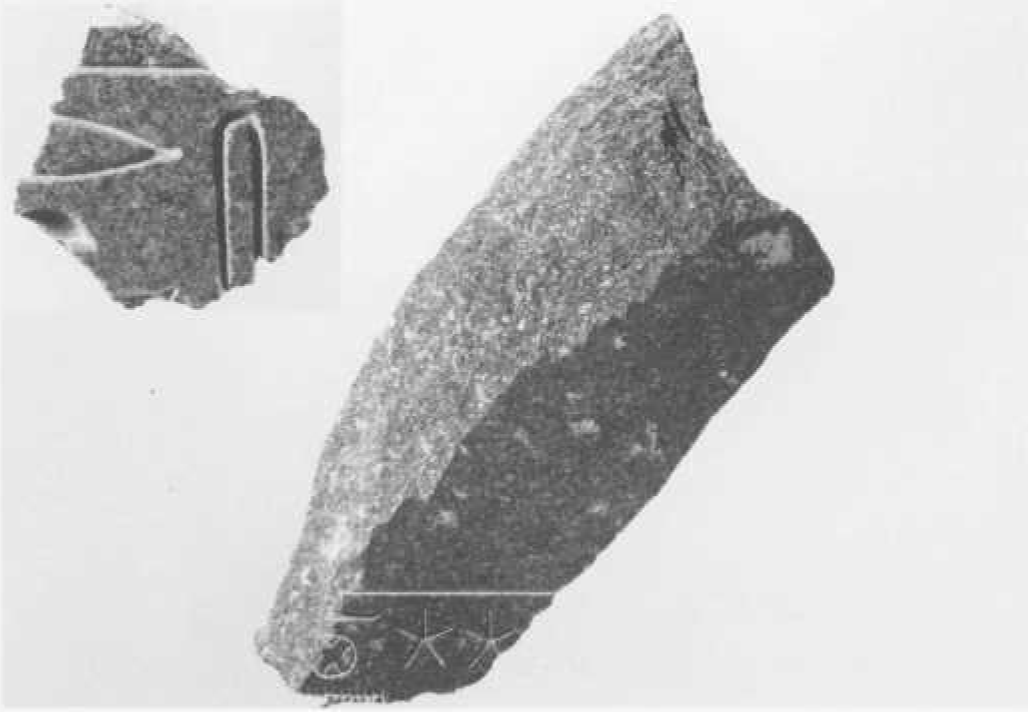
Pl. 8. Plan of the northwest (upper) and southwest (lower) corners of the king's pyramid subfoundation, foundation, and brick core. Scale 1:50. Drawing R.V. from drawings by D.A.



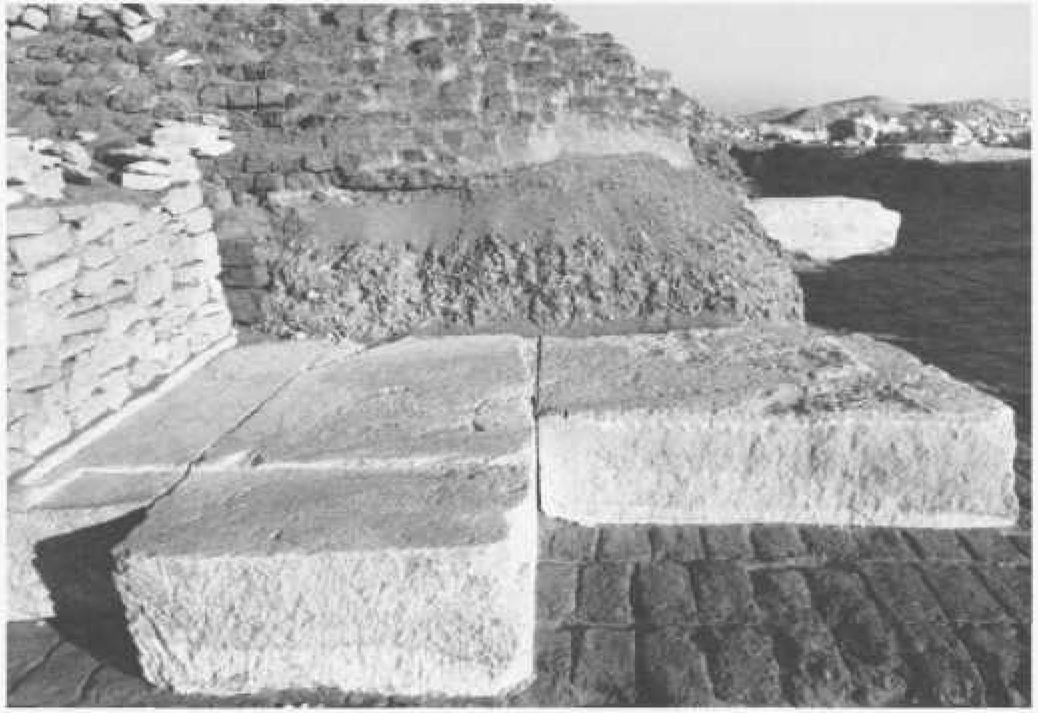
Pl. 9. Plan of the southeast corner of the king's pyramid subfoundation, foundation, and brick core. Scale 1:50. Drawing R.V. from drawings by D.A. and L.V.



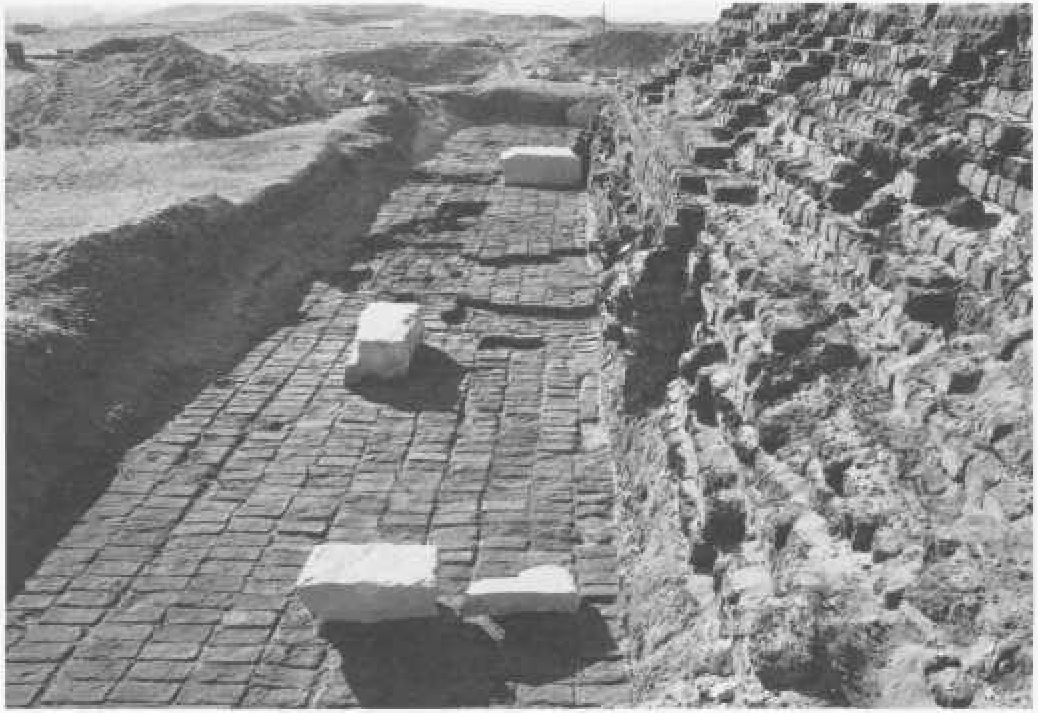
Pl. 10a. Brick subfoundation and foundation blocks of the northwest corner of the pyramid of Senwosret III. Photo D.A. (DH 93:481).



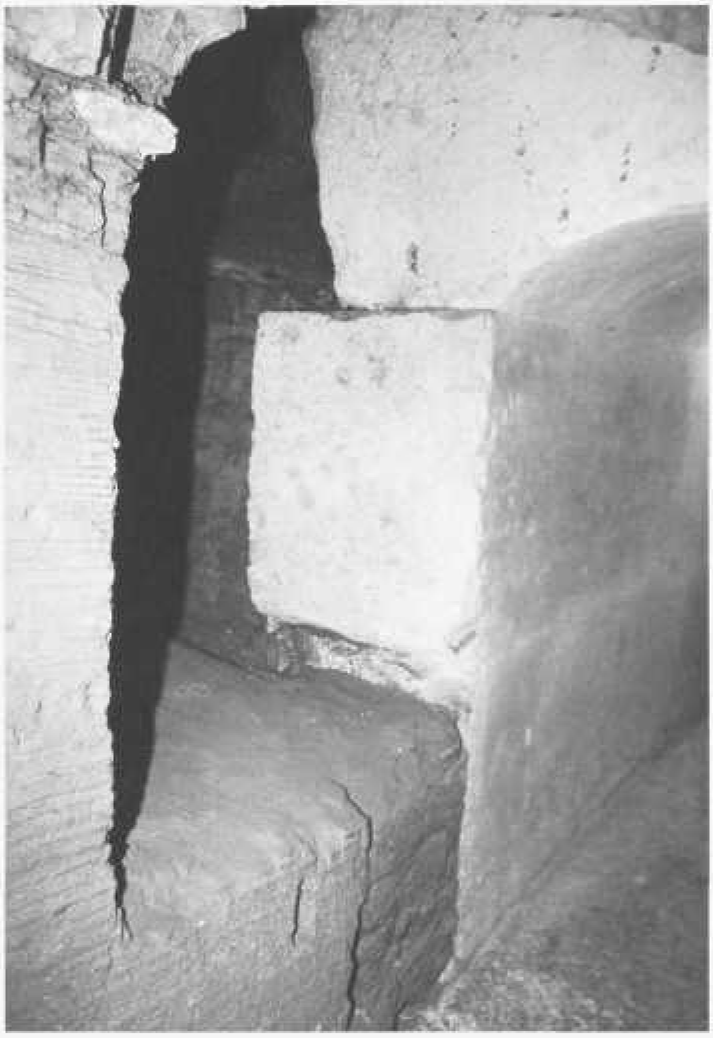
Pl. 10b. Fragments of the diorite pyramidion. See fig. 6b. Photos A.K. (DH 97:88/17–18; DH 97:89/1–2).



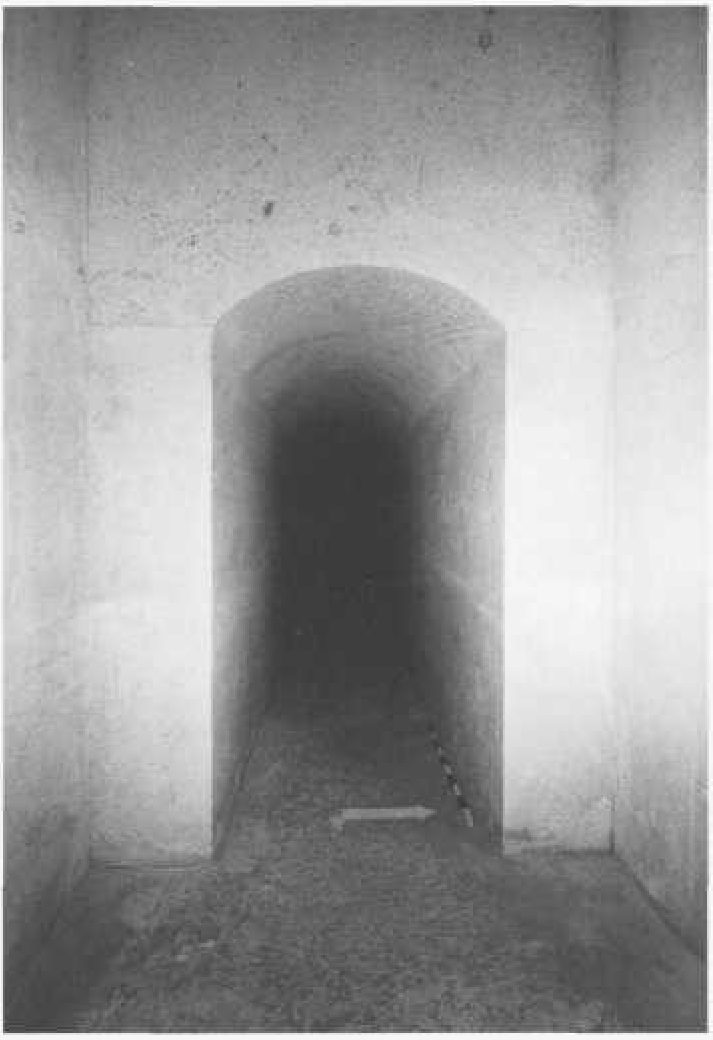
Pl. 10c. Brick subfoundation, foundation blocks, and brick core at the southeast corner of the pyramid of Senwosret III, facing north. Photo B.S.



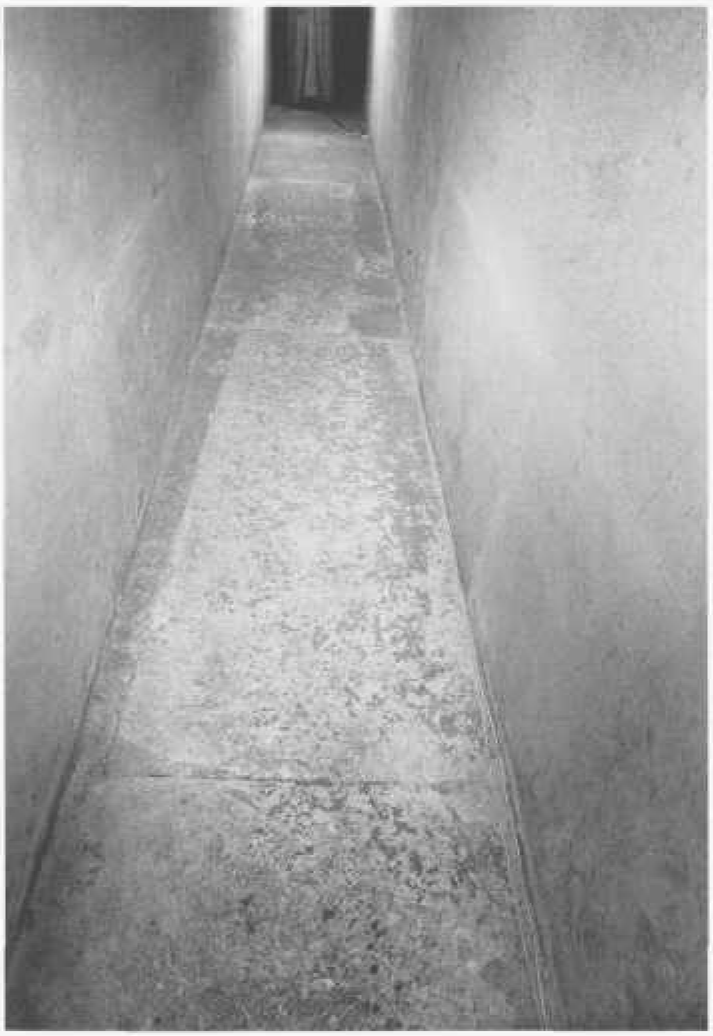
Pl. 10d. Brick subfoundation, foundation blocks, and brick core at the south end of the east side of the pyramid of Senwosret III, facing south. Photo B.S.



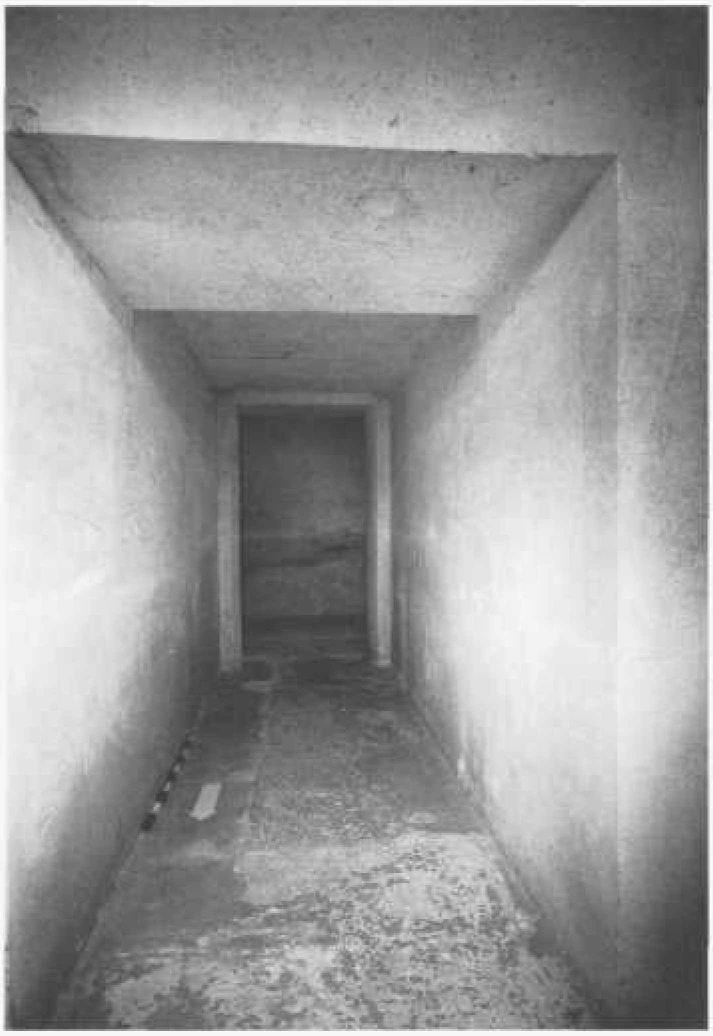
Pl. 11a. King's tomb. Stone-lined entrance corridor (right) and opening into De Morgan's tunnel (left), facing northeast. Photo G.D. (DH 90:375).



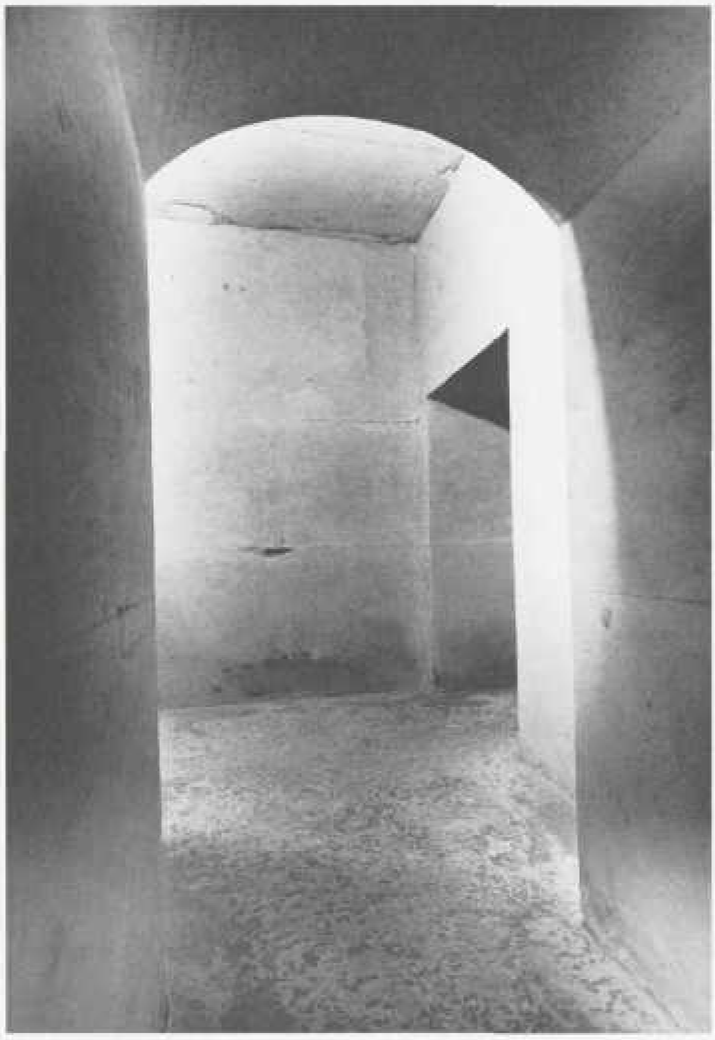
Pl. 11b. King's tomb. East end of the stone-lined entrance corridor seen from the turning chamber, facing west. Photo G.D. (DH 90:140).



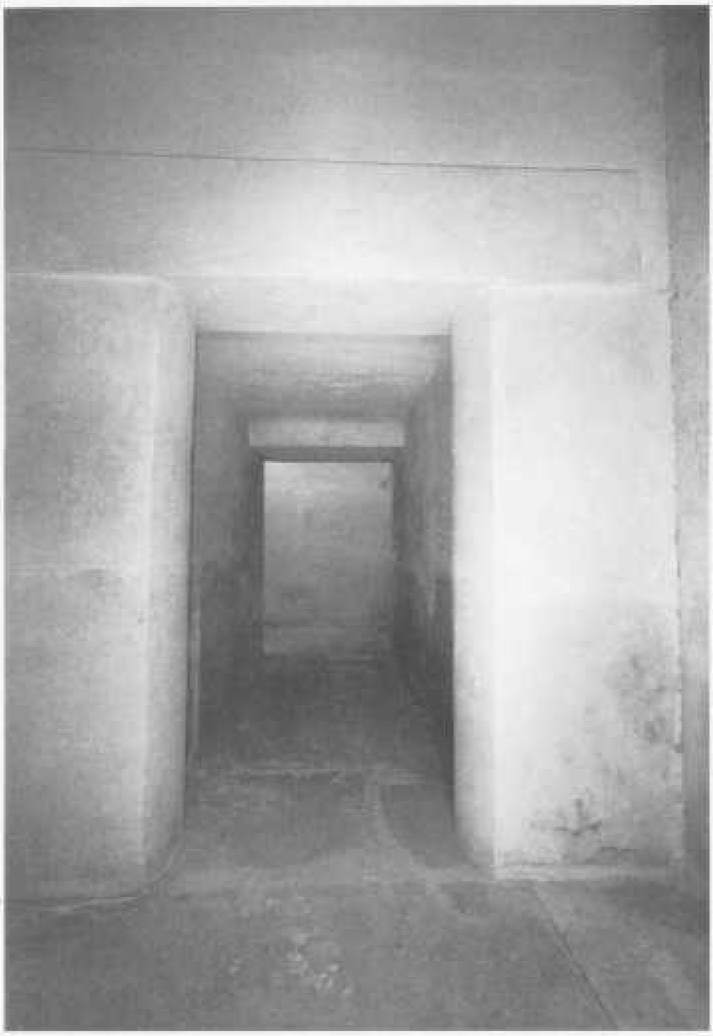
Pl. 11c. King's tomb. Stone-lined entrance corridor, facing west. Photo G.D. (DH 90:143).



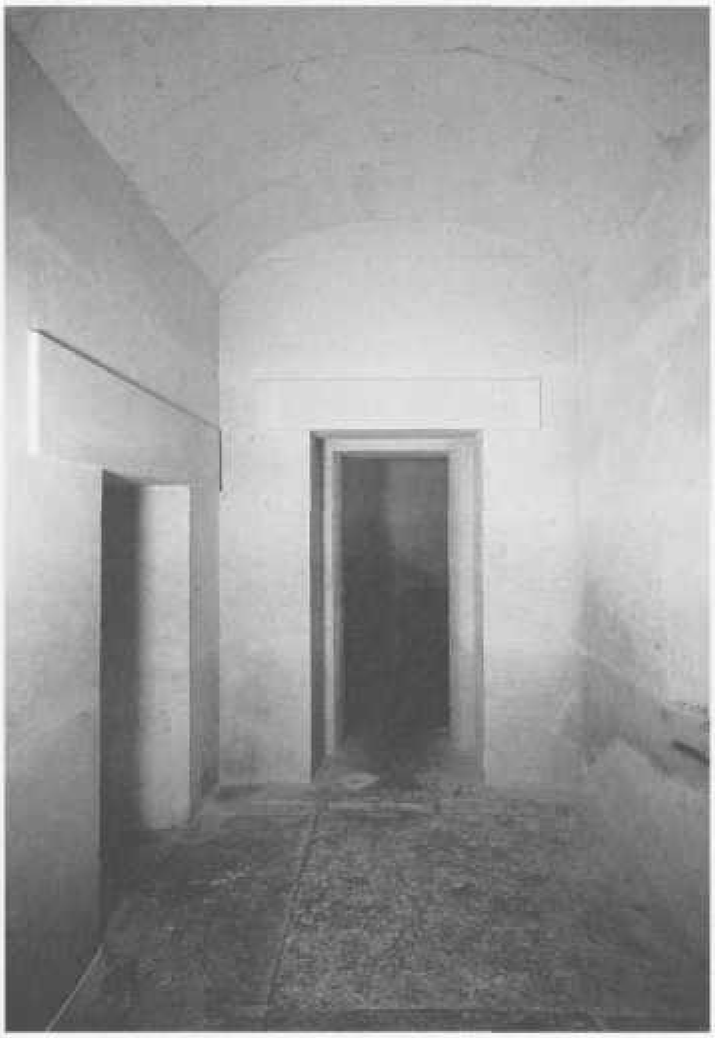
Pl. 11d. King's tomb. Passage between the turning chamber and the antechamber, facing south. Photo G.D. (DH 90:138).



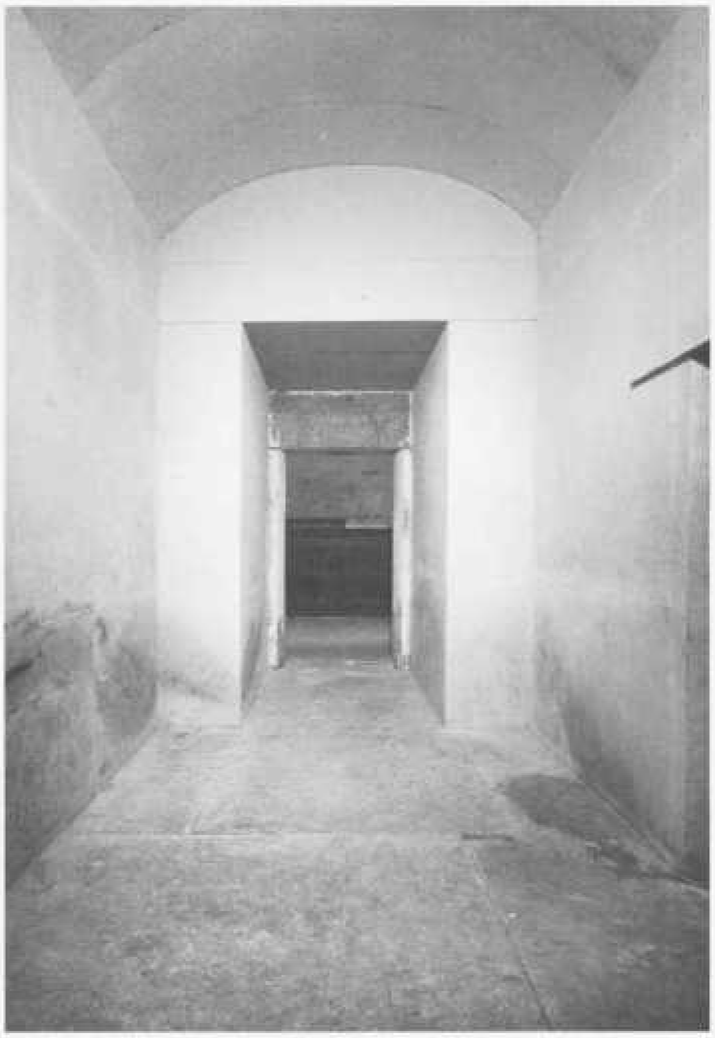
Pl. 12a. King's tomb. View into the turning chamber, with the passage to the antechamber to the right, facing east. Photo G.D. (DH 90:139).



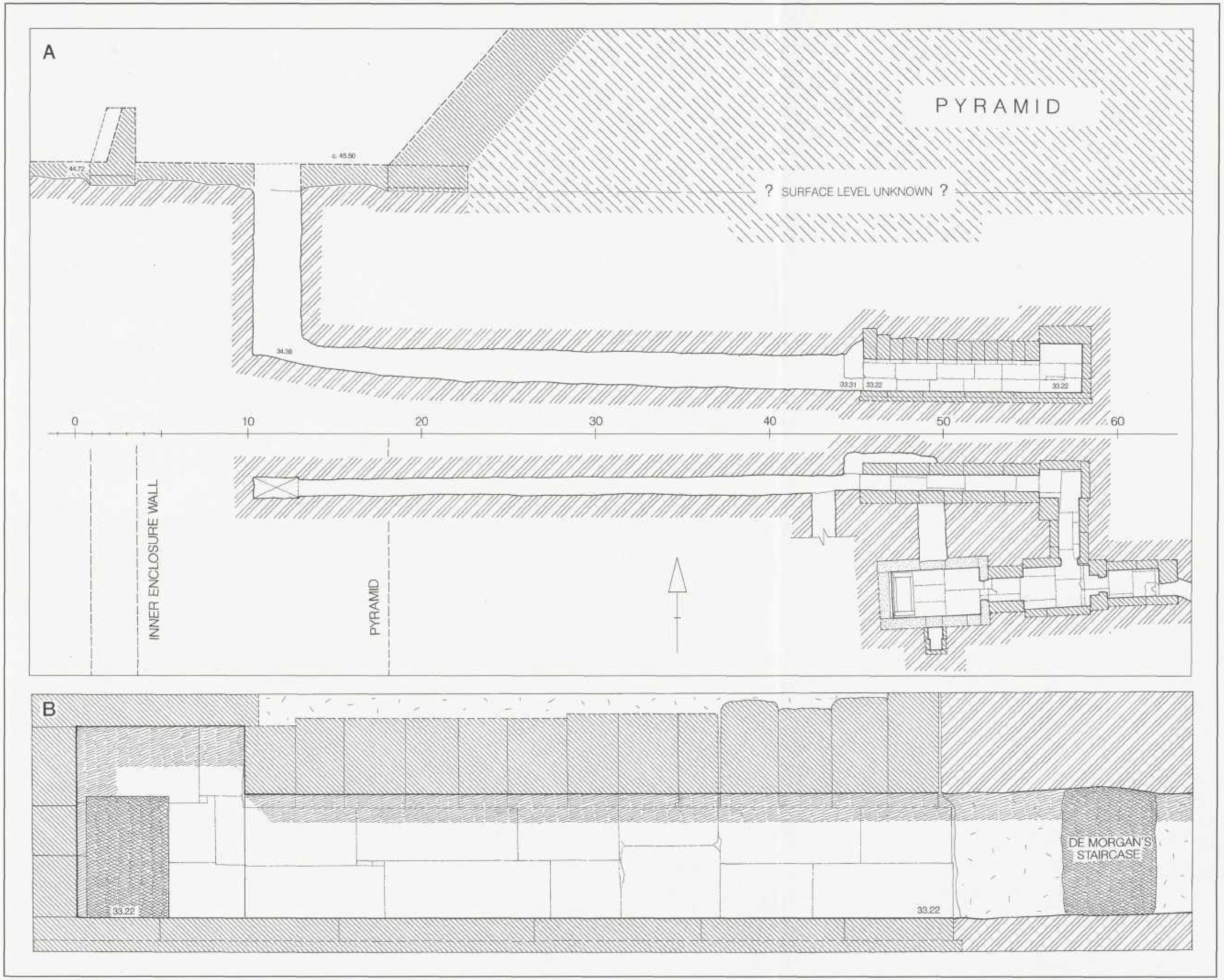
Pl. 12b. King's tomb. North wall of the antechamber, with the passage between the antechamber and turning chamber. Photo G.D. (DH 90:137).



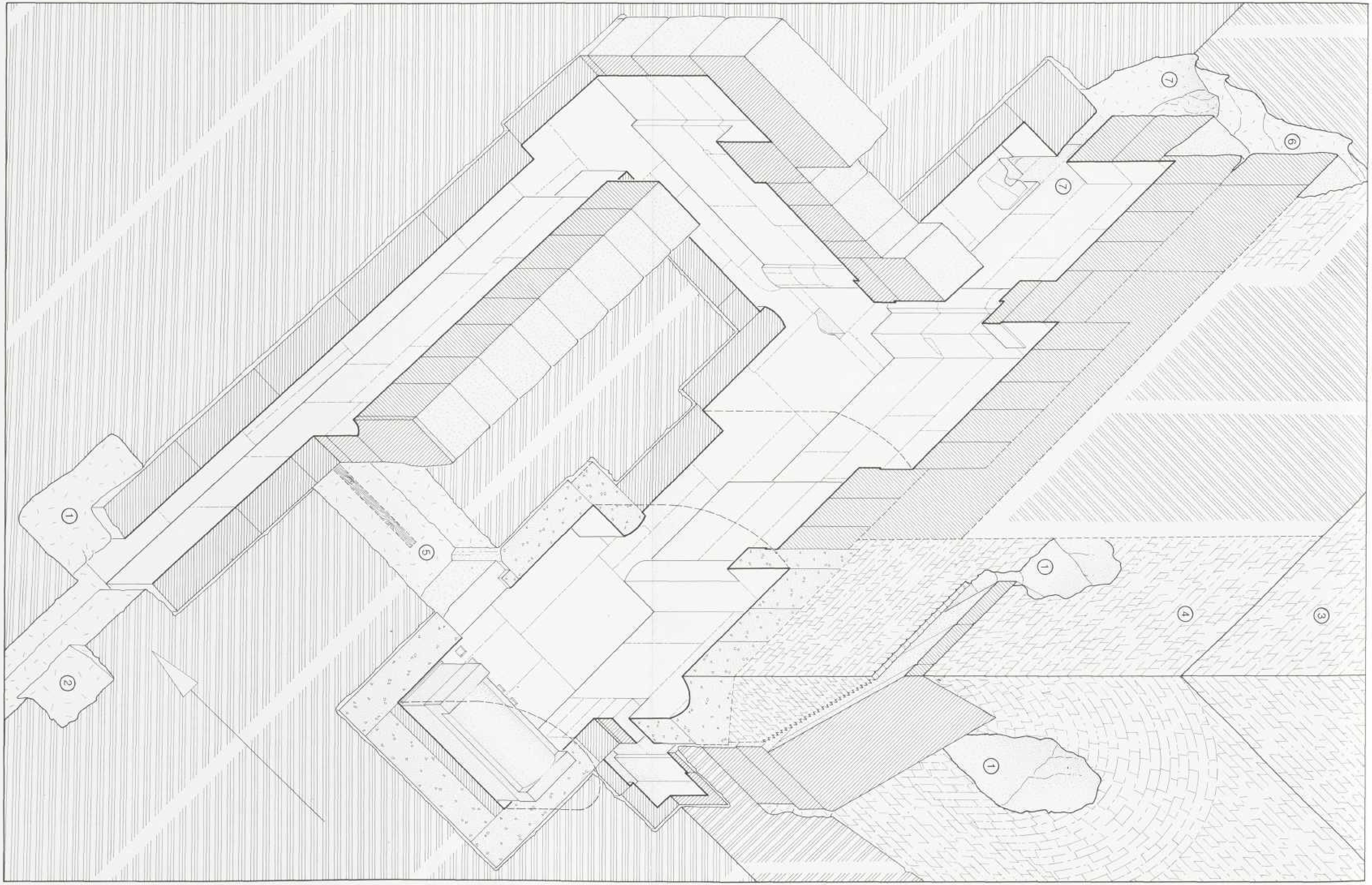
Pl. 12c. King's tomb. East side of the antechamber with entrances to the serdab (center) and passage (left). Photo G.D. (DH 90:125).



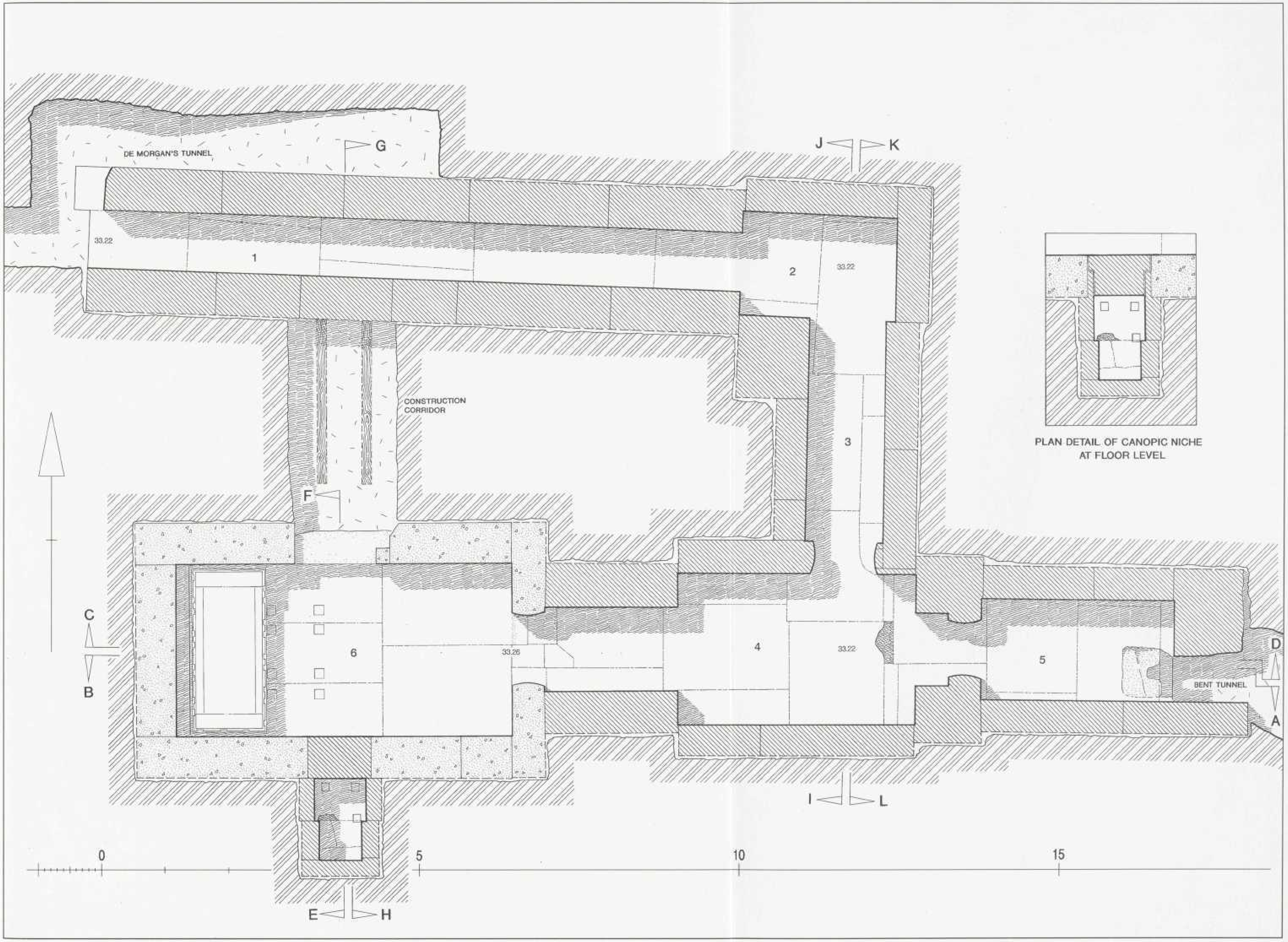
Pl. 12d. King's tomb. West side of the antechamber with entrances to the royal crypt (center) and passage (right). Photo G.D. (DH 90:131).



Pl. 13. King's tomb. *A)* West-east section and overall plan. Scale 1:200. *B)* East-west section through turning chamber, stone-lined, and unlined entrance corridors, facing south. Scale 1:50. Drawings R.V. from drawings by L.V.

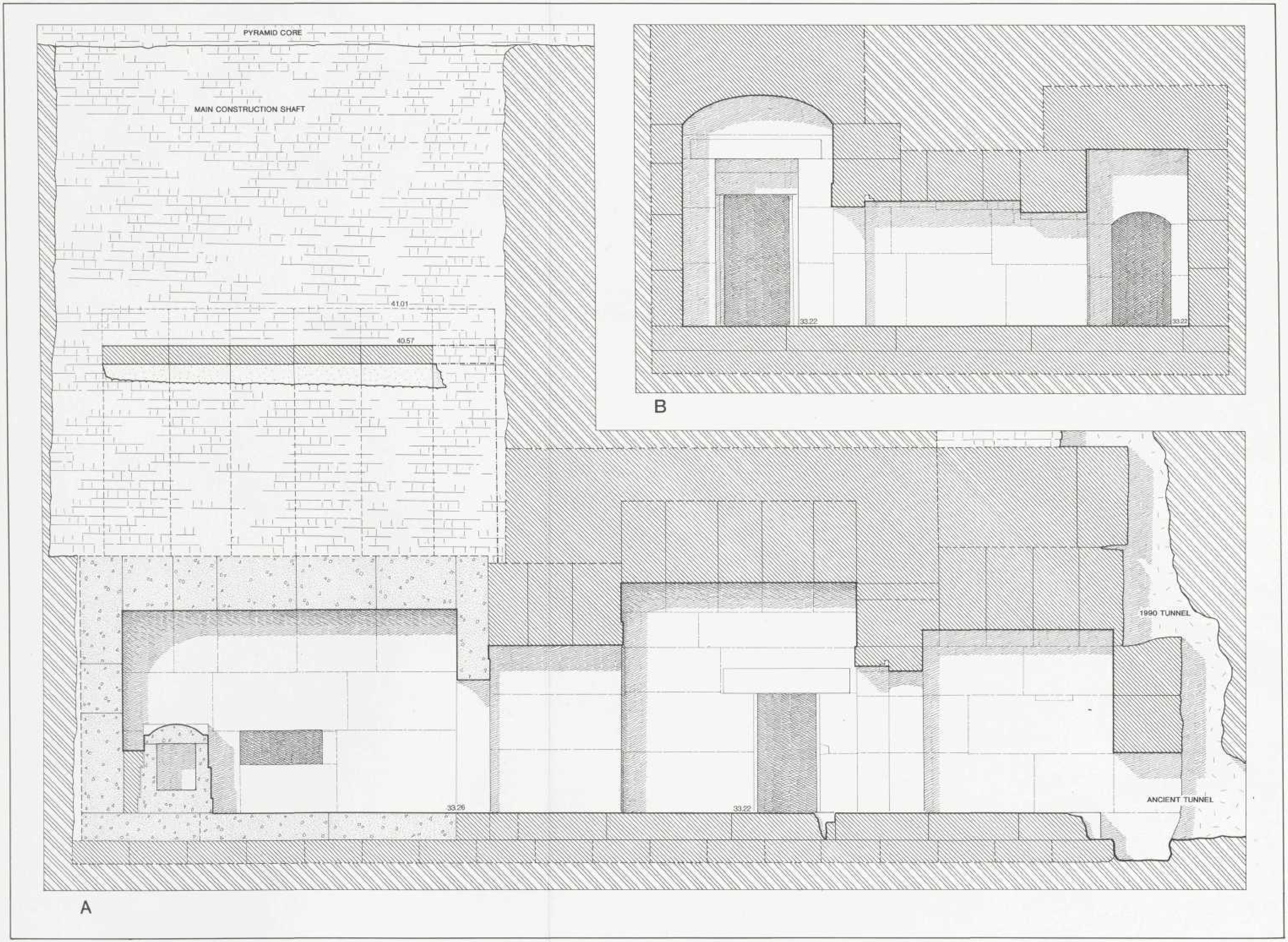


Pl. 14. Axonometric view of the king's tomb. 1) De Morgan's tunnels. 2) De Morgan's staircase. 3) Pyramid core. 4) Brick vault. 5) Construction corridor. 6) Tunnel of present excavation (1990). 7) Later ancient opening in serdab and the bent tunnel behind it. No scale. Drawing R.V.

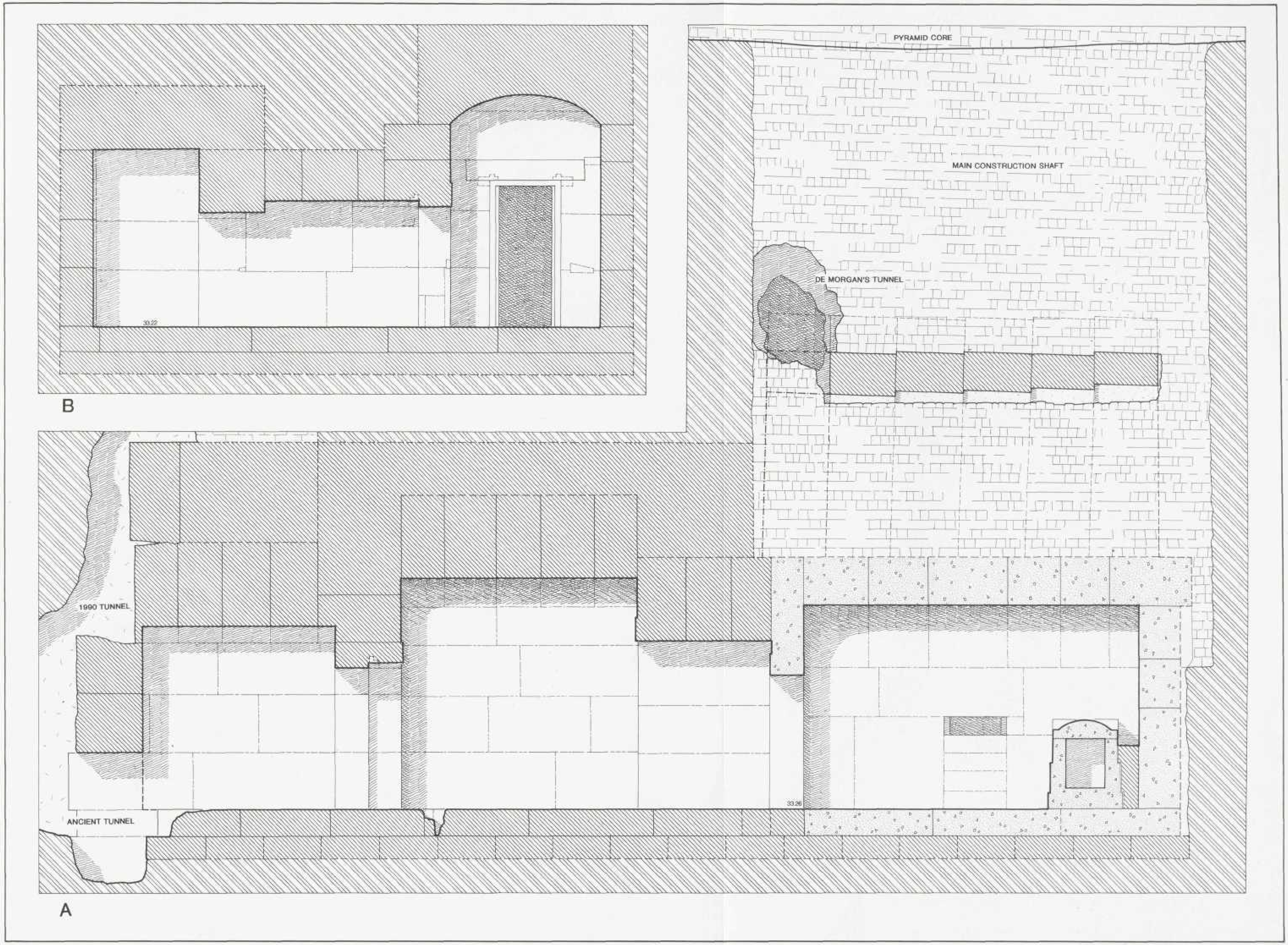


Pl. 15. Plan of the king's tomb. 1) Stone-lined corridor. 2) Turning chamber. 3) Passage. 4) Antechamber. 5) Serdab. 6) Crypt. Letters refer to sections on pls. 16–18. Scale 1:50. Drawing R.V. from drawings by L.V.

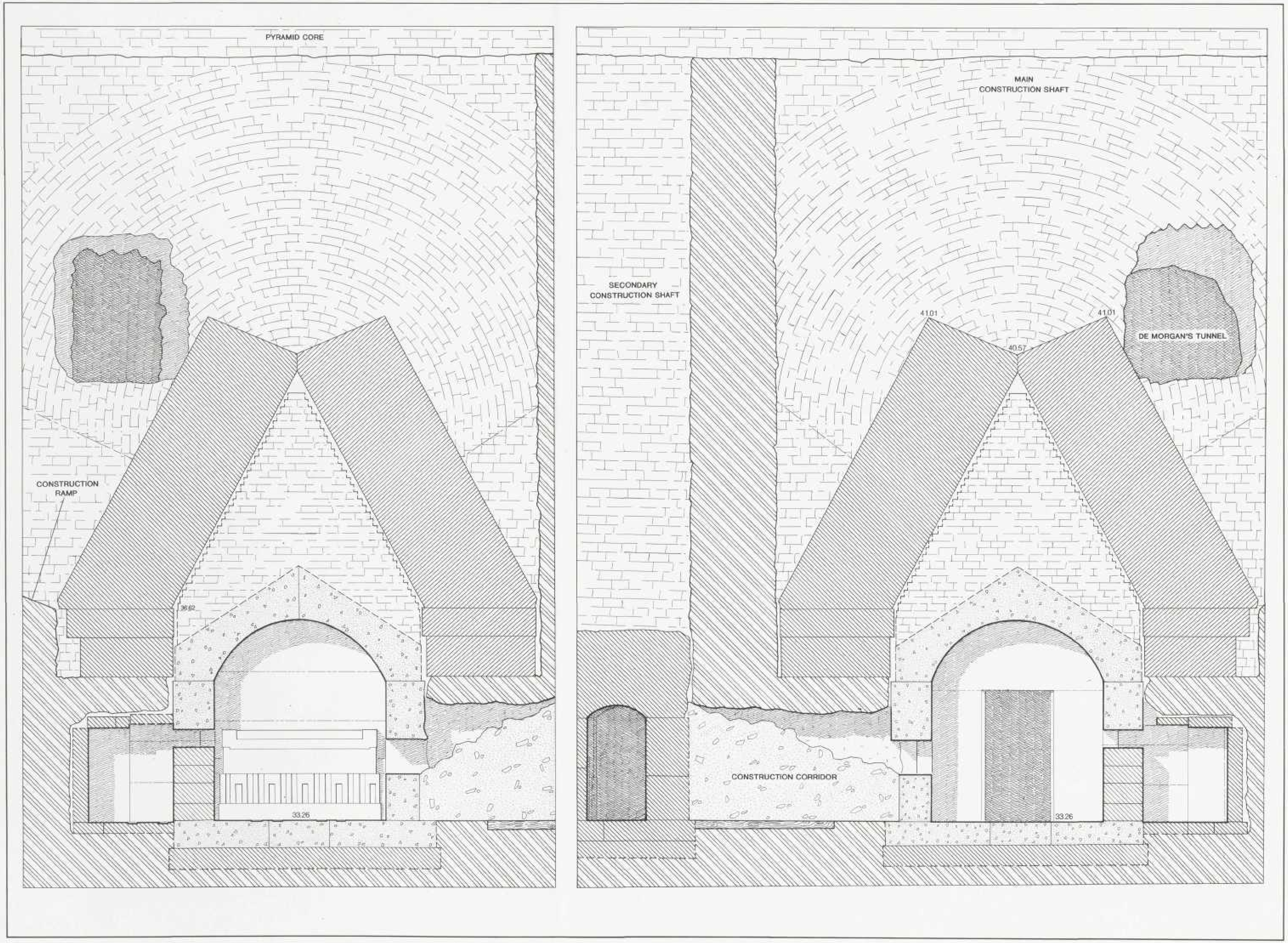
PLATE 16



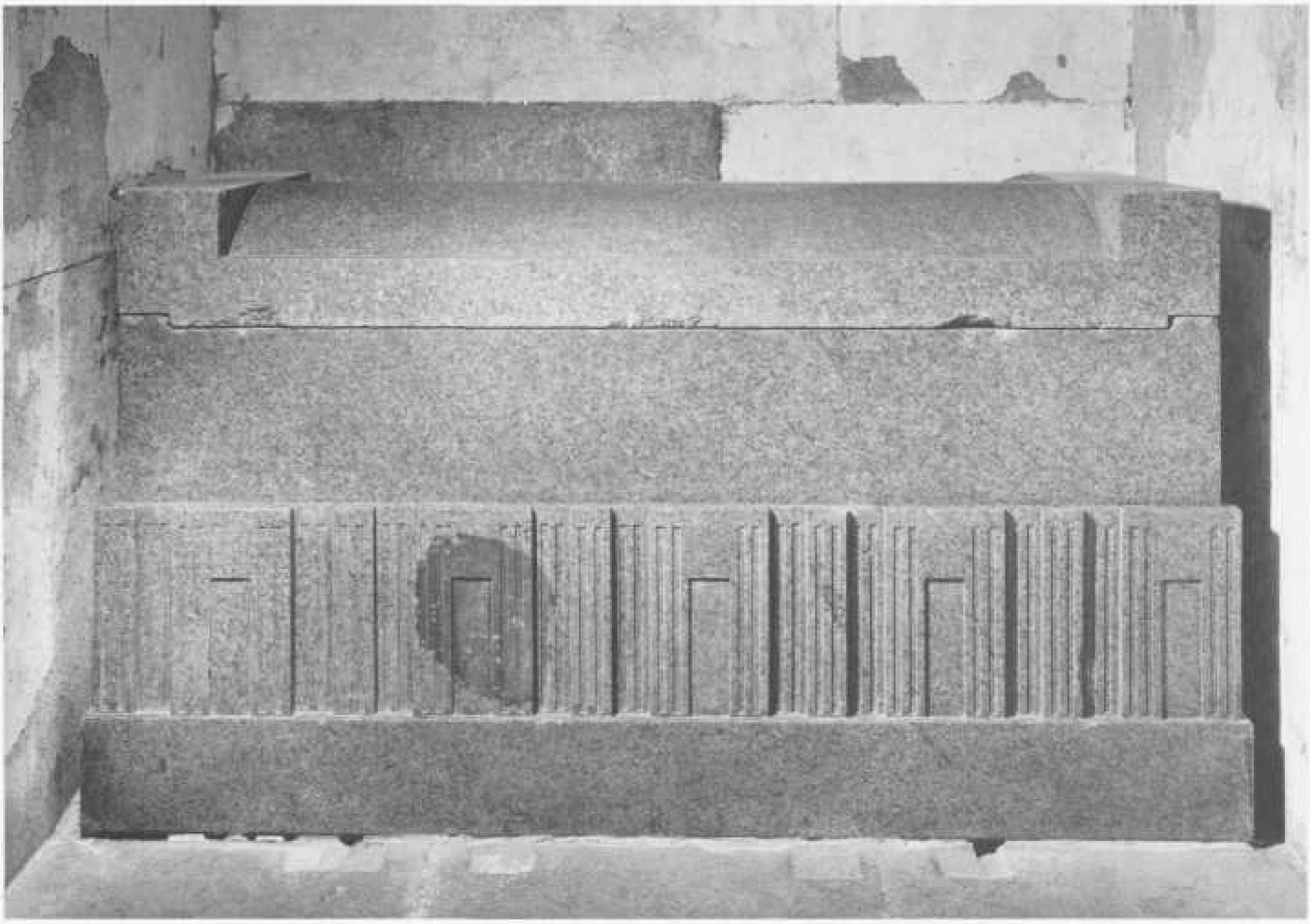
Pl. 16. Sections of the king's tomb. *A)* West-east section C–D through the crypt, antechamber, and serdab. *B)* South-north section I–J through the antechamber, passage, and turning chamber, facing west. Scale 1:50. Drawings R.V. from drawings by L.V.



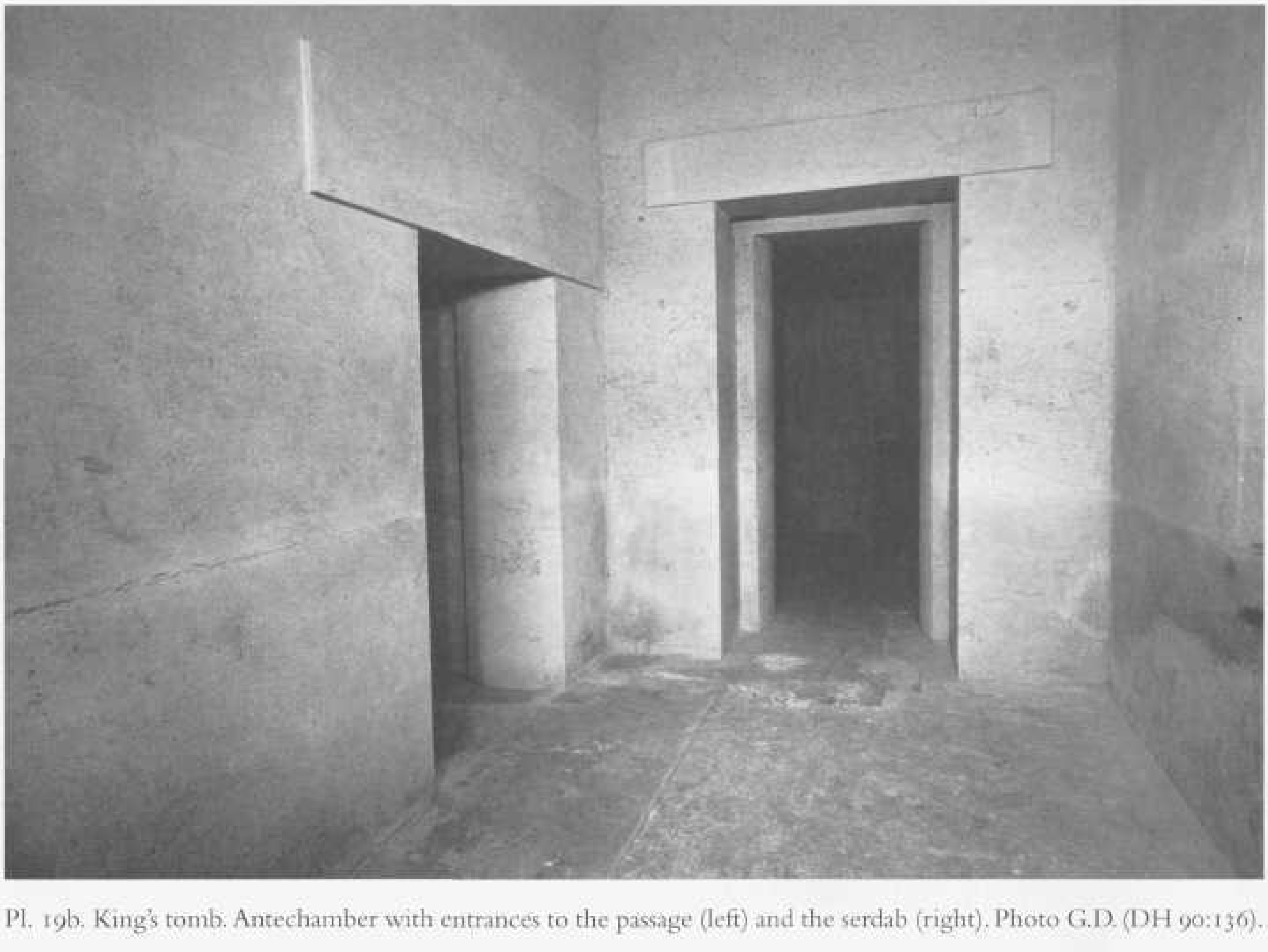
Pl. 17. Sections of the king's tomb. *A)* East-west section A–B through the serdab, antechamber, and crypt. *B)* North-south section K–L through the turning chamber, passage, and antechamber. Scale 1:50. Drawings R.V. from drawings by L.V.



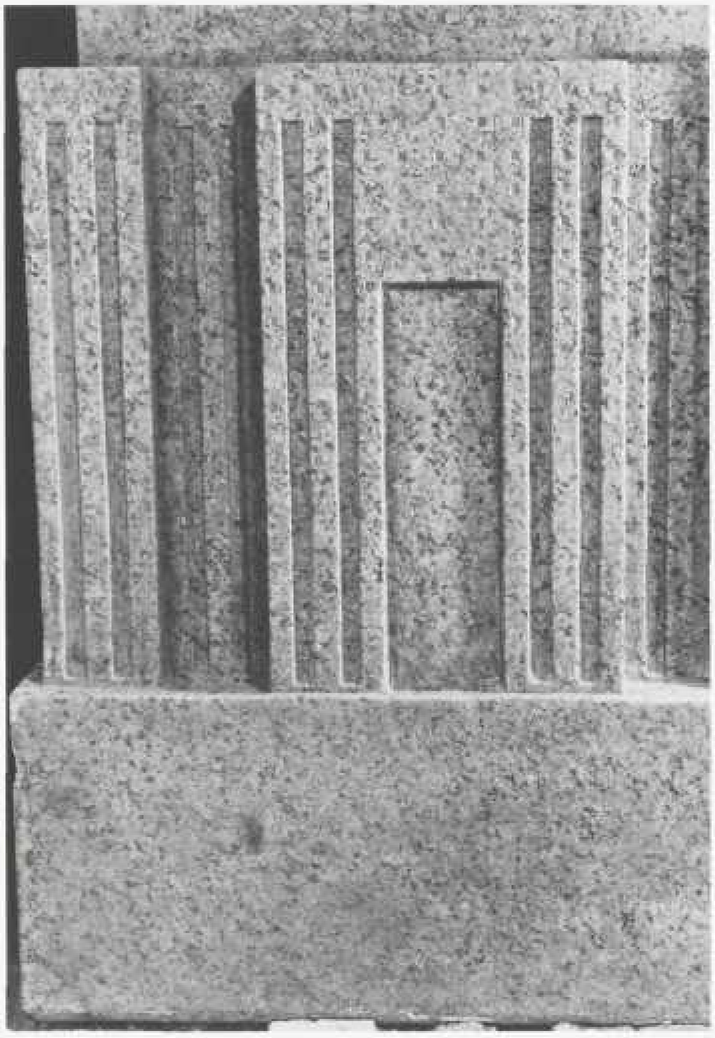
Pl. 18. Sections of the king's tomb. Left: South-north section E–F through the canopic niche, crypt, and construction corridor. Right: North-south section G–H through the entrance corridor, construction corridor, crypt, and canopic niche. Scale 1:50. Drawings R.V. from drawings by L.V.



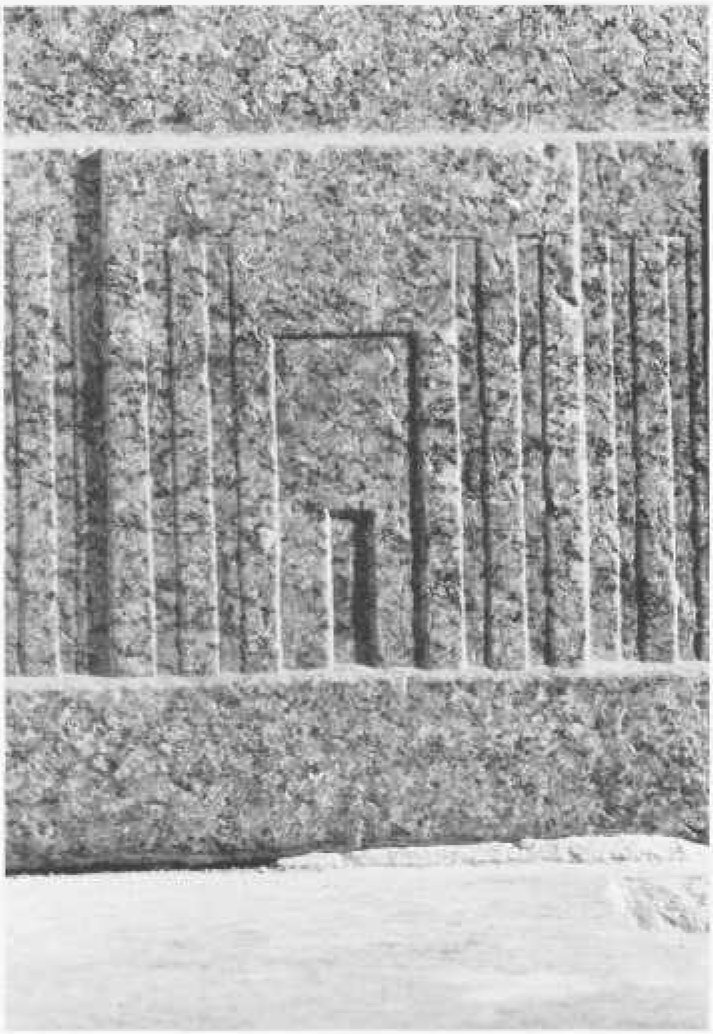
Pl. 19a. King's tomb. The king's red granite sarcophagus. Photo A.K. (DH 98).



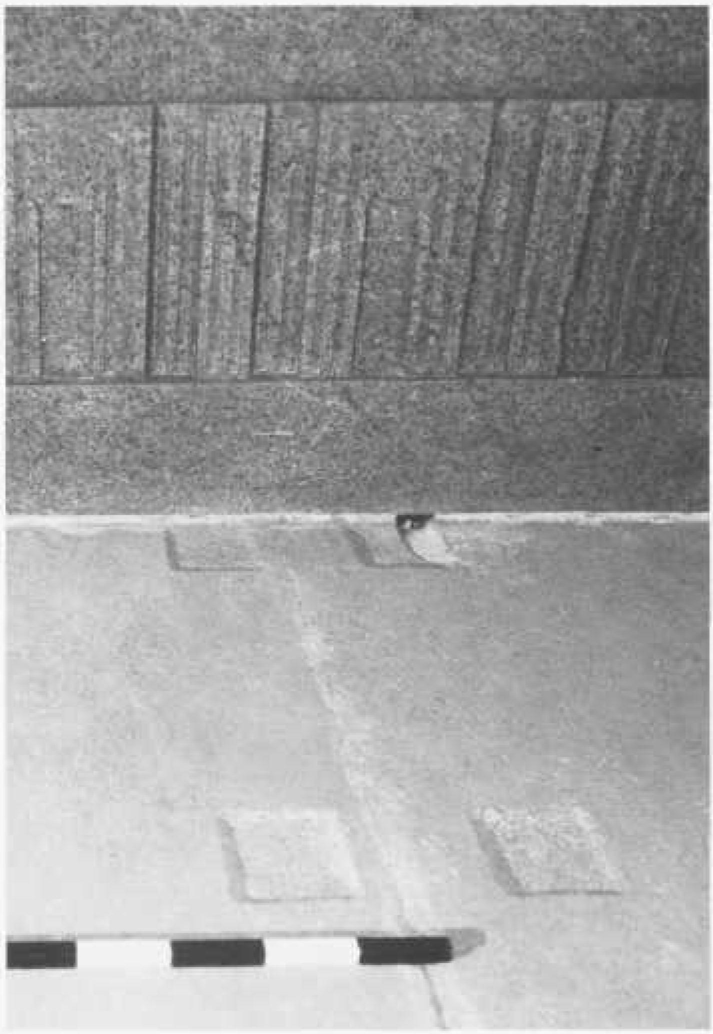
Pl. 19b. King's tomb. Antechamber with entrances to the passage (left) and the serdab (right). Photo G.D. (DH 90:136).



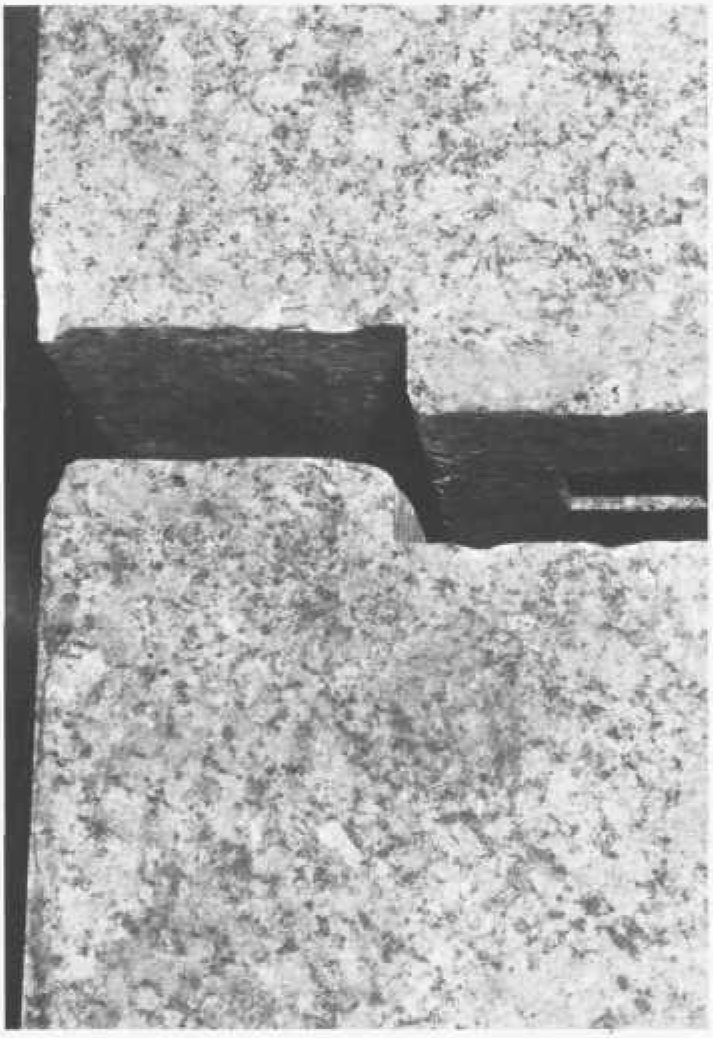
Pl. 20a. King's tomb. South end of the east side of the sarcophagus. See pl. 29. Photo G.D. (DH 90:333).



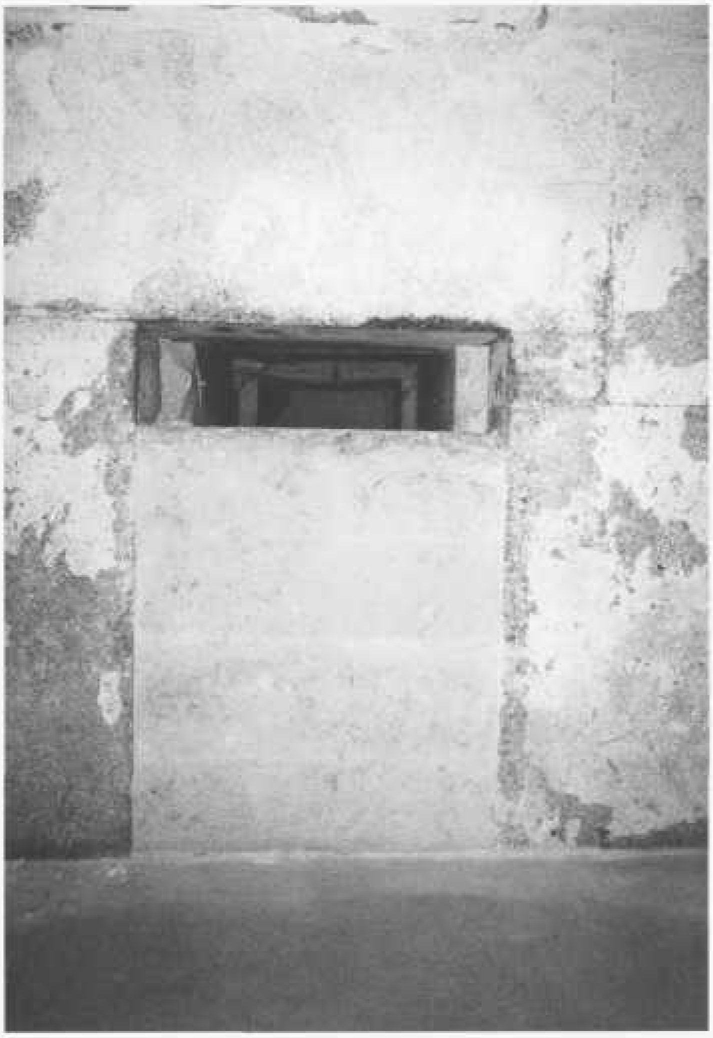
Pl. 20b. North tomb of Weret II (pyramid 9). South end of the east side of the sarcophagus. See pls. 61, 65. Photo E.T. and C.M. (DH 96:33/4).



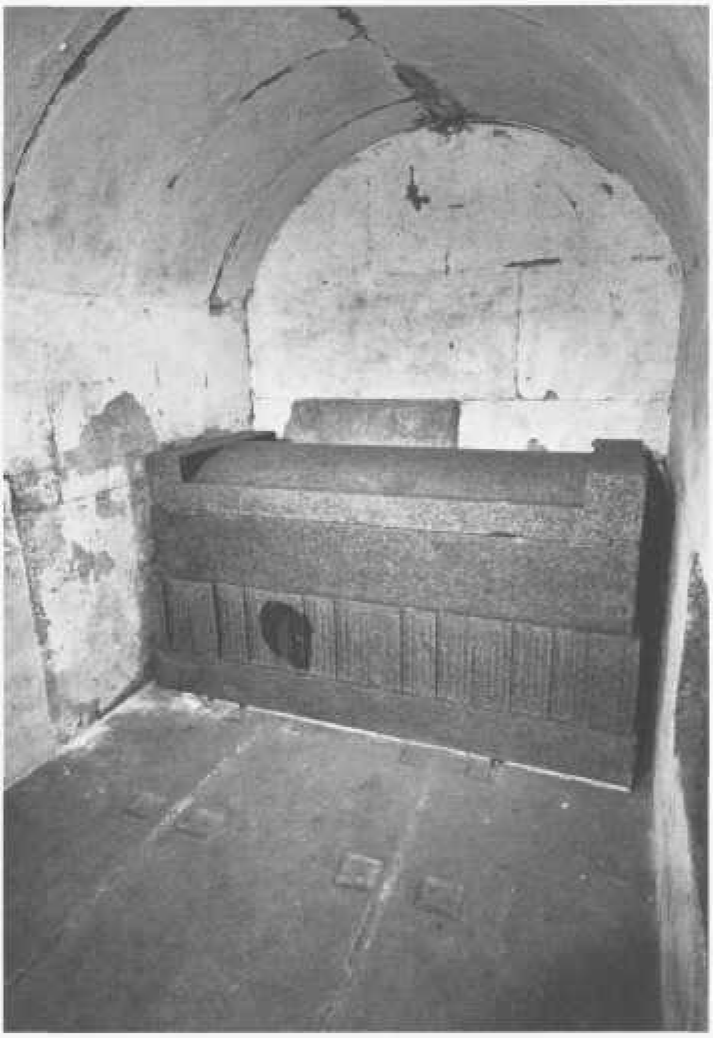
Pl. 20c. King's tomb. Sockets in the granite floor in front of the sarcophagus. See pl. 21b. Photo G.D. (DH 90:330).



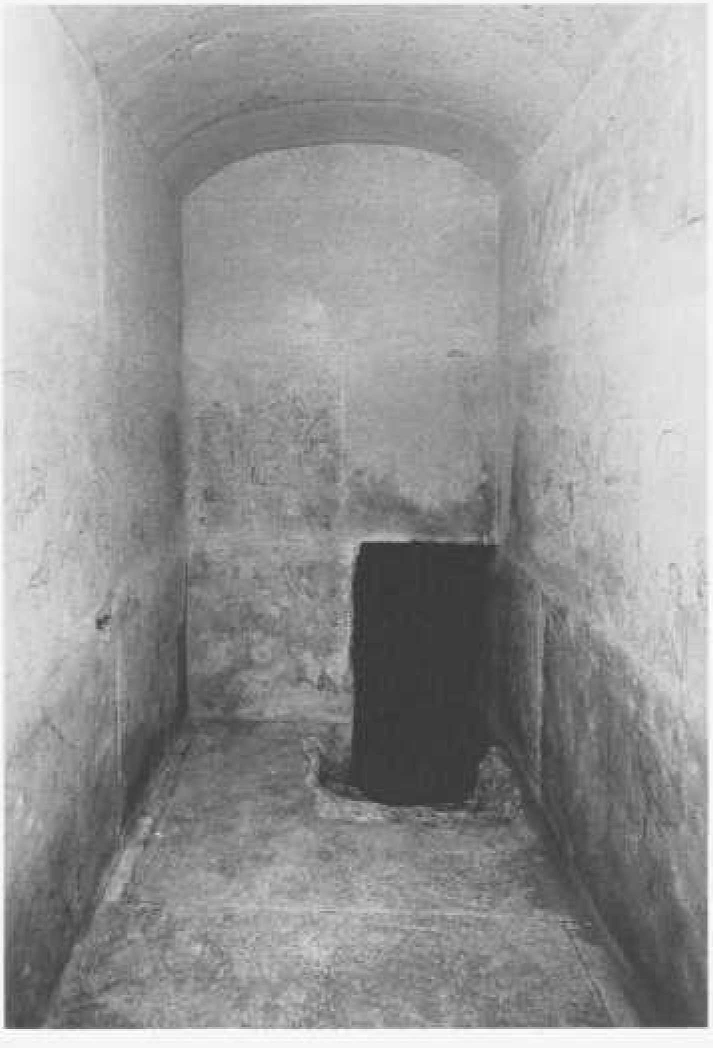
Pl. 20d. King's tomb. Southeast corner of the lid and box of the sarcophagus. Photo G.D. (DH 90:321).



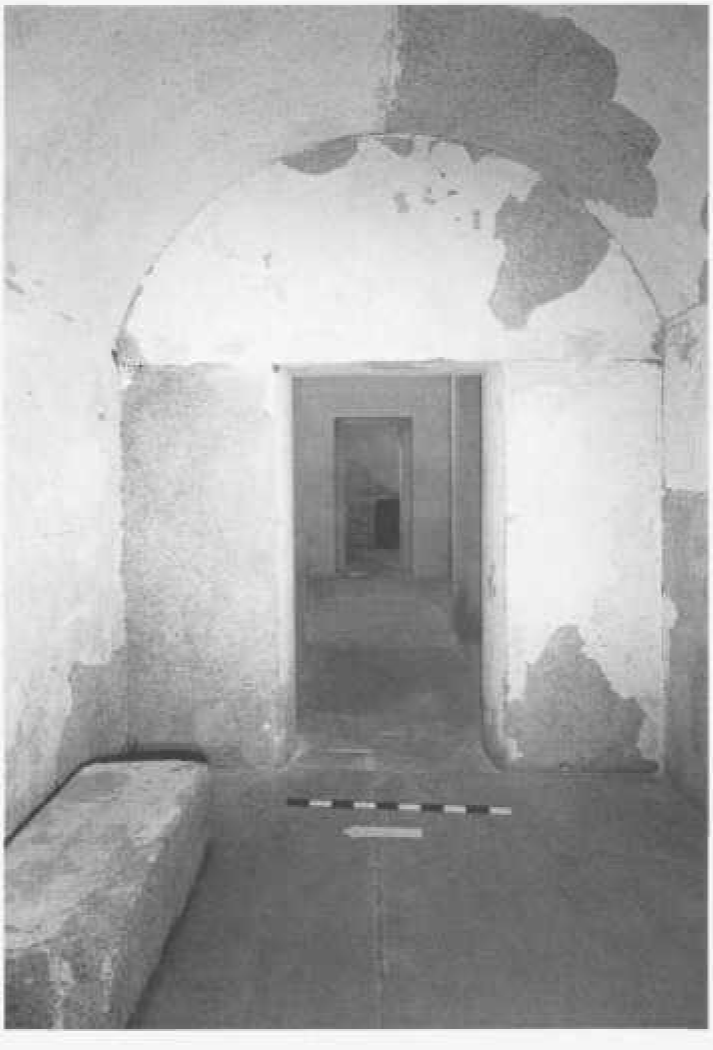
Pl. 21a. King's tomb. Limestone blocking of the canopic niche in the south wall of the crypt. Photo G.D. (DH 90:129).



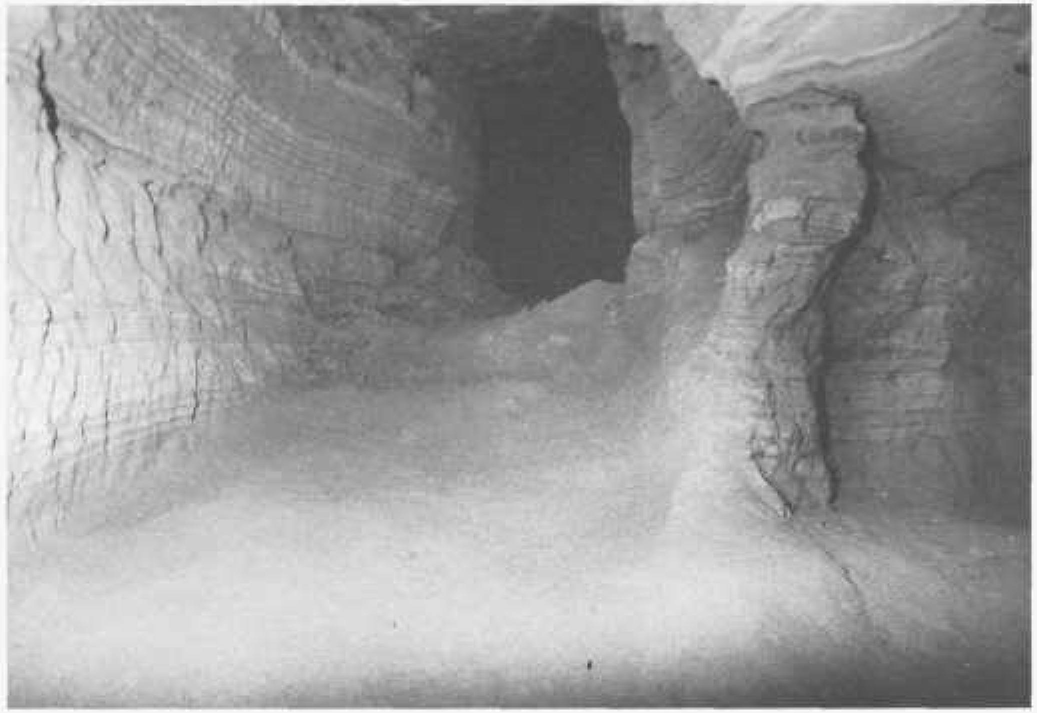
Pl. 21b. King's tomb. The red granite sarcophagus, facing southwest. Photo G.D. (DH 90:128).



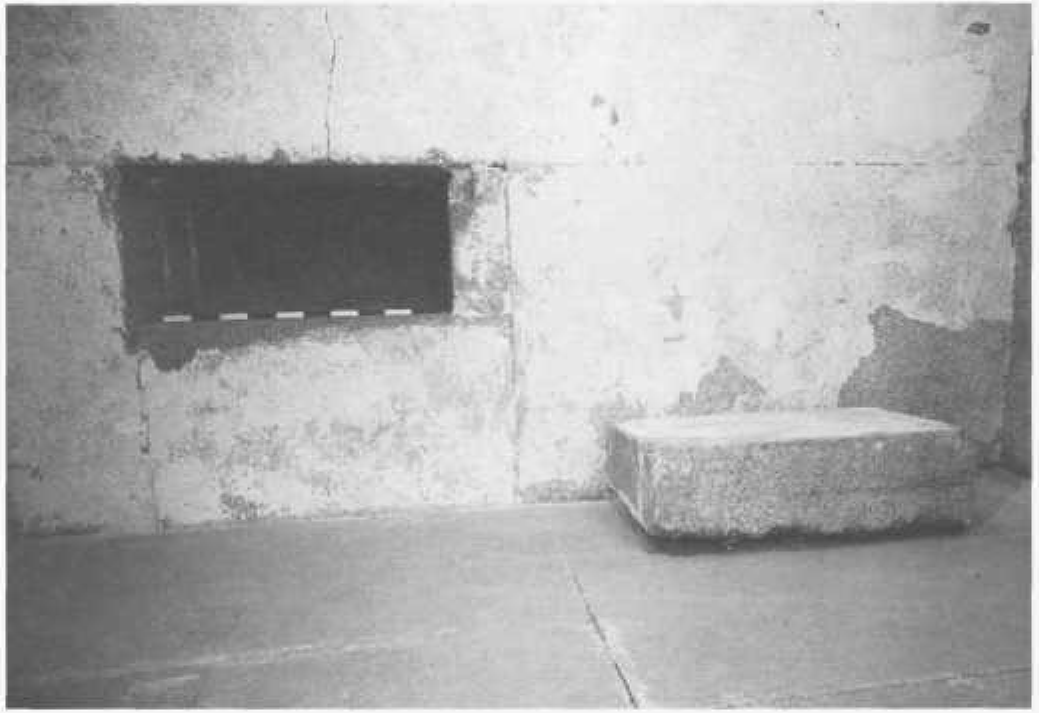
Pl. 21c. King's tomb. East side of the serdab, with the opening into the bent corridor. Photo G.D. (DH 90:124).



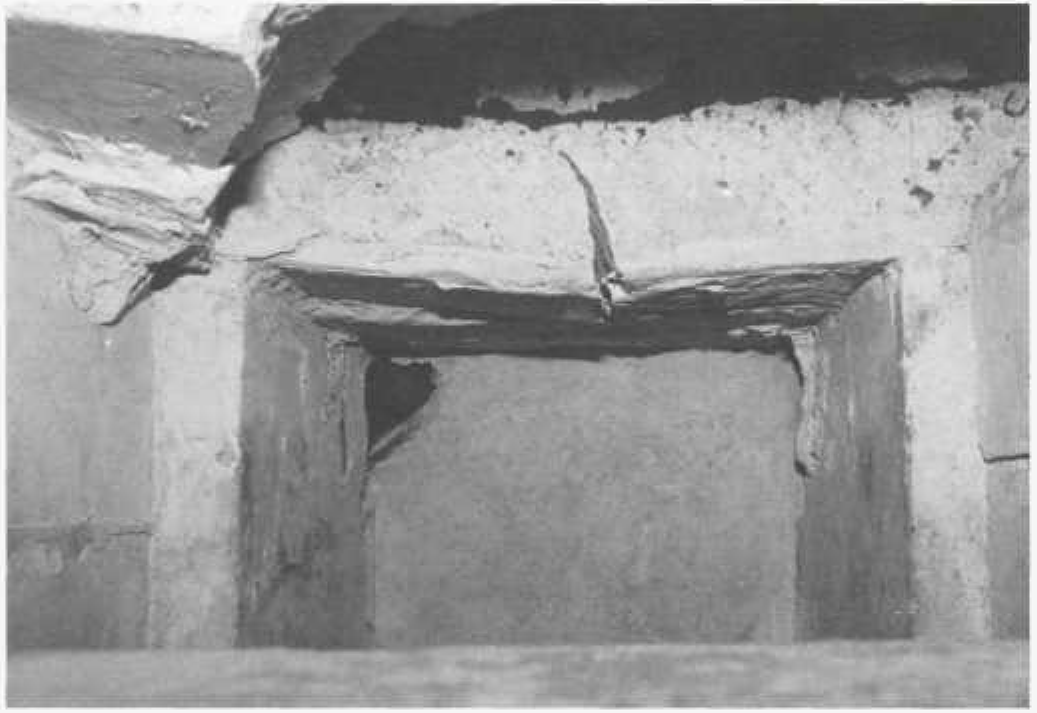
Pl. 21d. King's tomb. View to the east from the crypt. Photo G.D. (DH 90:126).



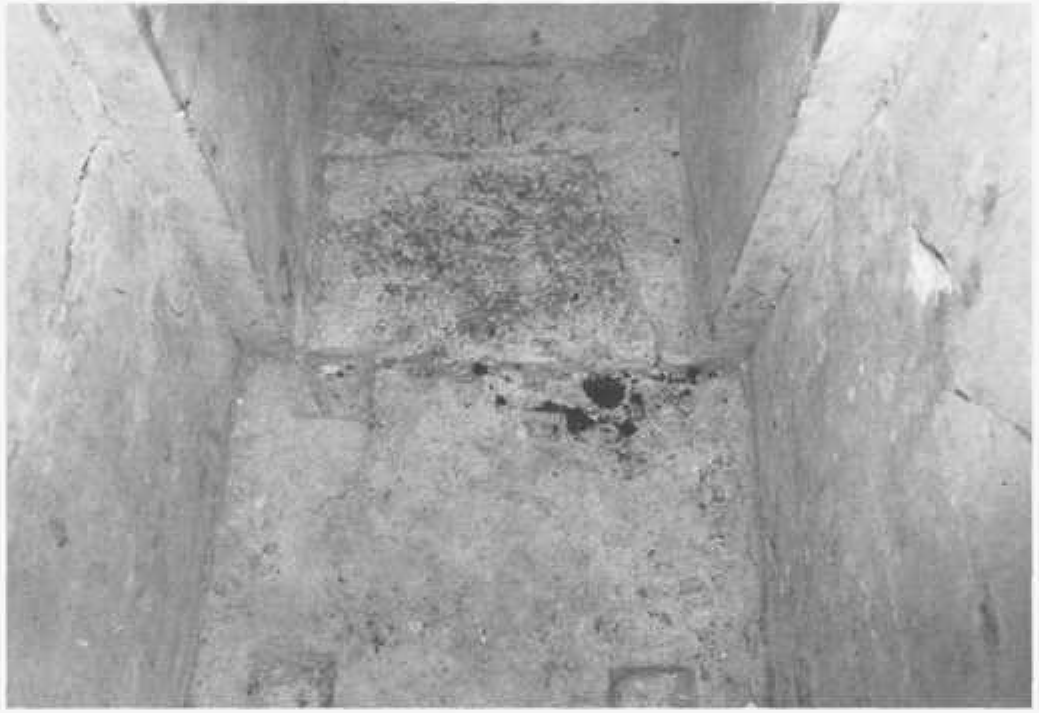
Pl. 22a. King's tomb. Bent corridor behind the serdab, facing northeast from the first corner. Photo A.K. and B.S. (DH 97:35/10).



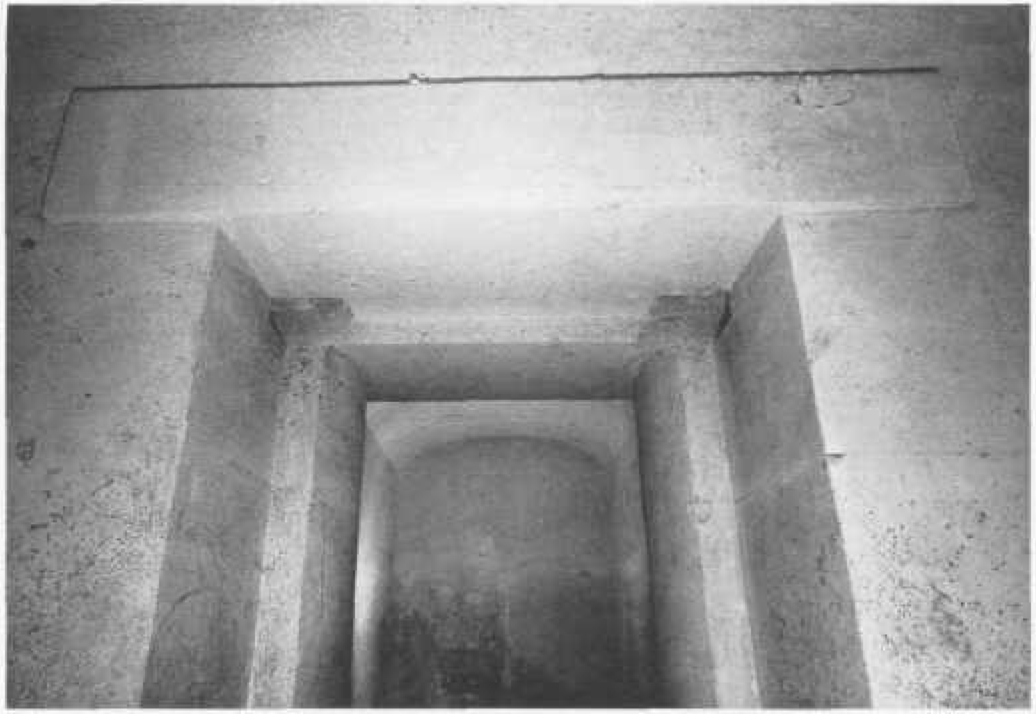
Pl. 22b. King's tomb. Granite blocking of the construction corridor in the north wall of the crypt. Photo G.D. (DH 90:130).



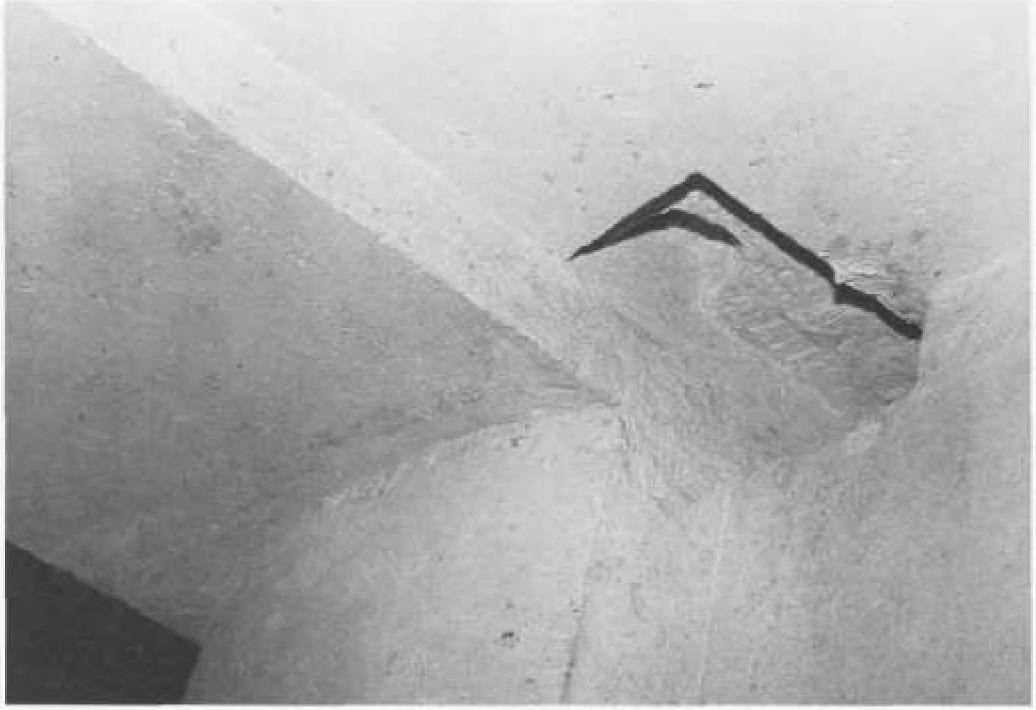
Pl. 22c. King's tomb. Cracked ceiling of the canopic niche. Photo G.D. (DH 90:319).



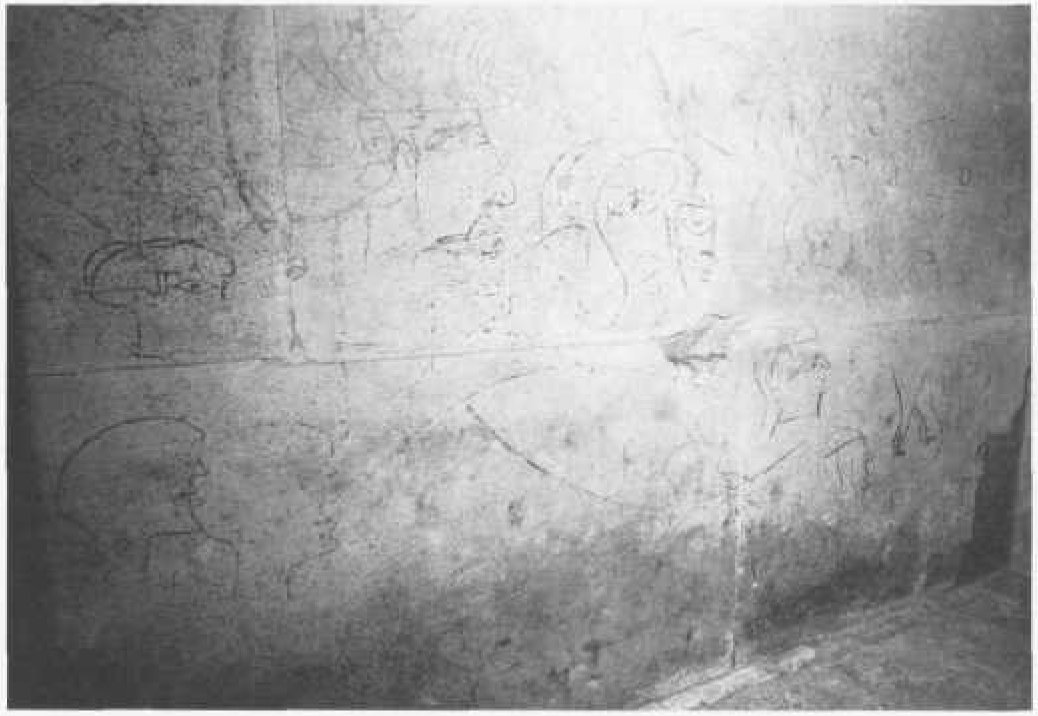
Pl. 22d. King's tomb. Four sockets in the floor of the canopic niche. Photo G.D. (DH 90:320).



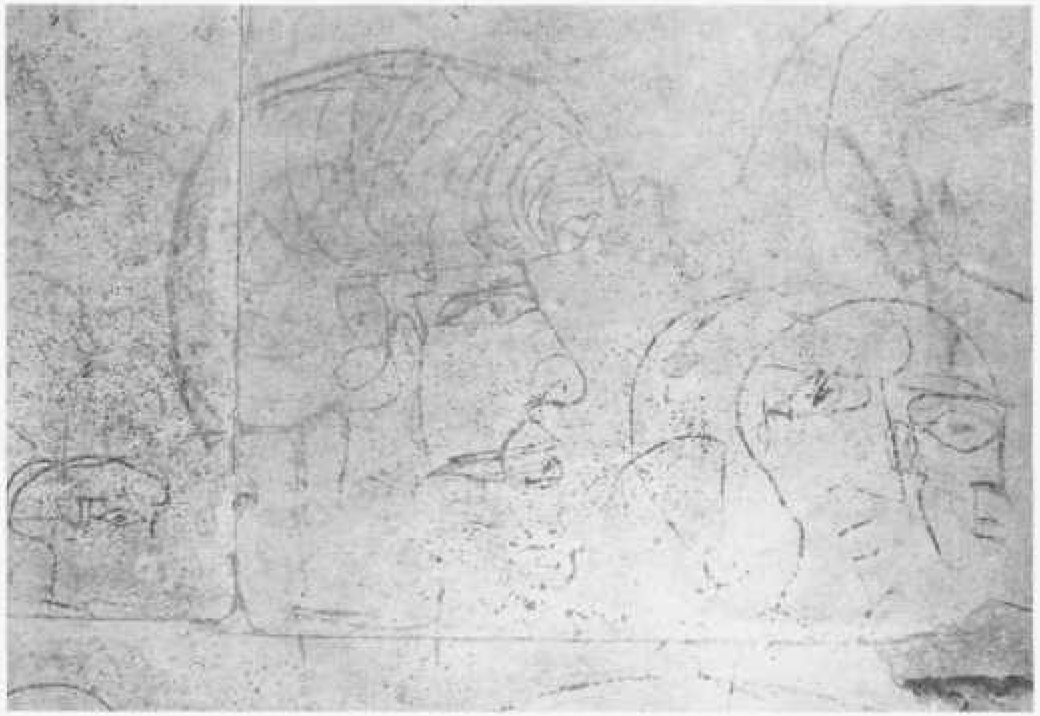
Pl. 23a. King's tomb. Doorframe and entrance into the serdab, facing east. Photo G.D. (DH 90:134).



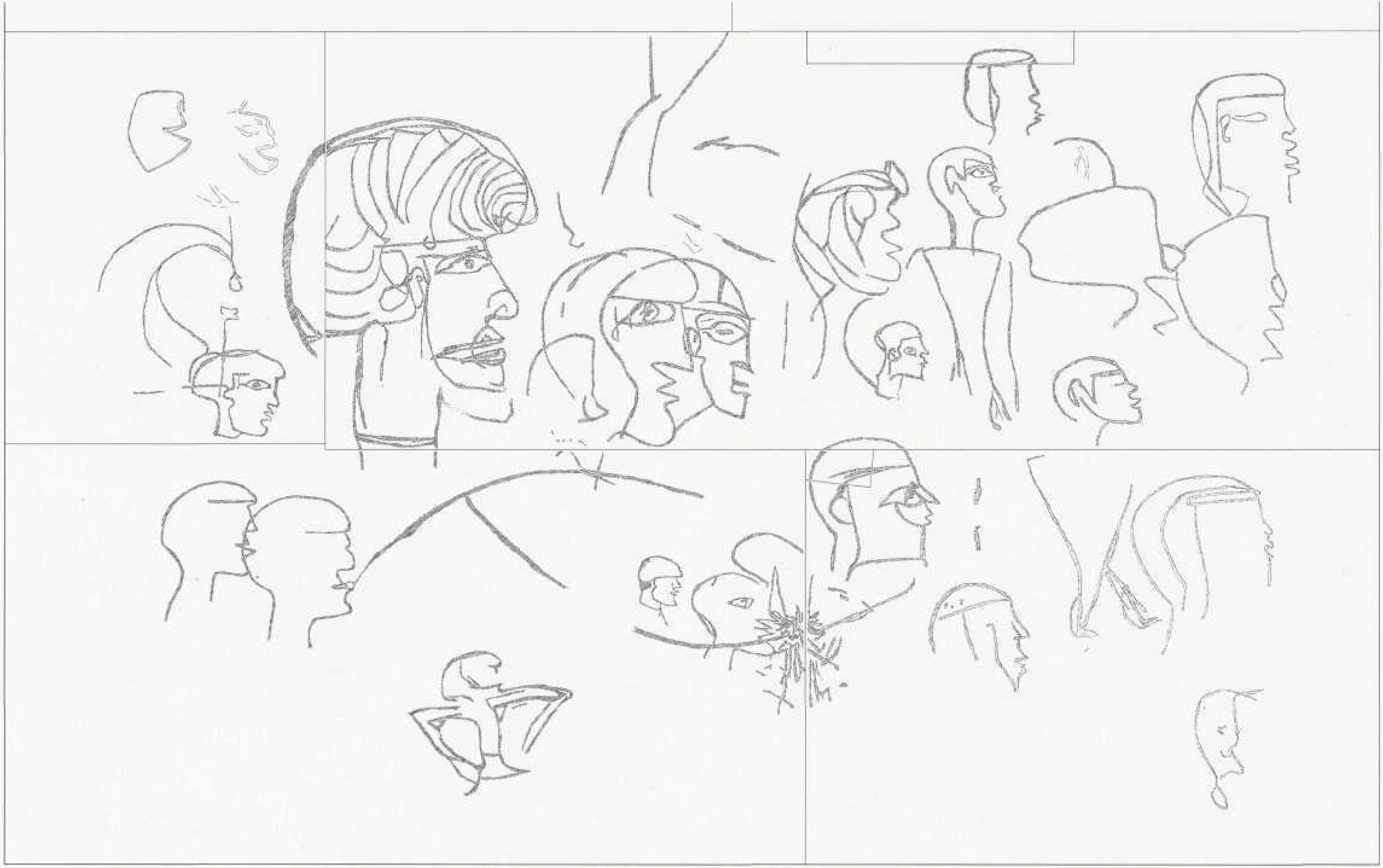
Pl. 23b. King's tomb. Socket for the upper (south) pivot in the doorway to the serdab. Photo G.D. (DH 90:389).



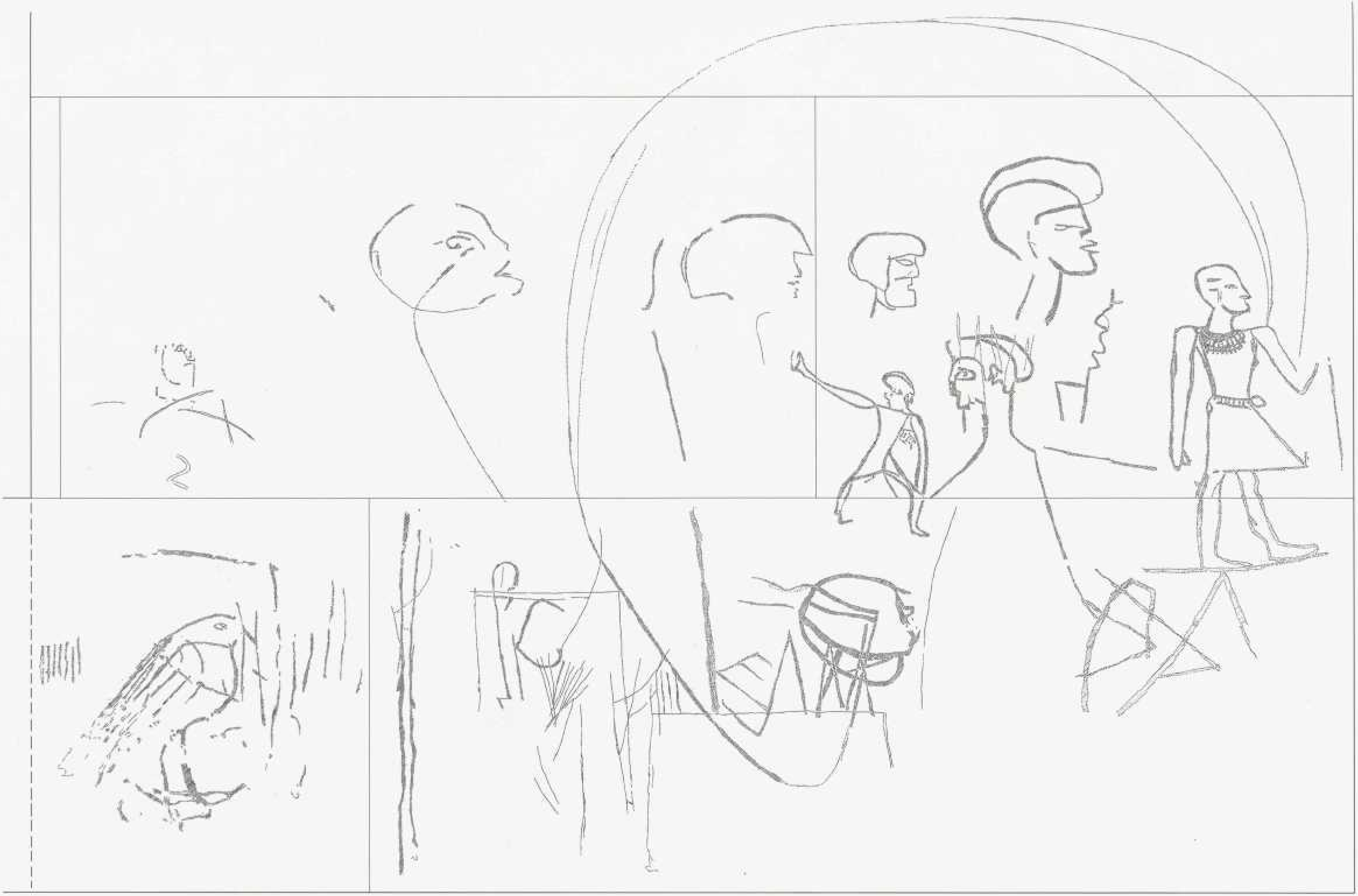
Pl. 23c. King's tomb. Graffiti on the north wall of the serdab. Photo G.D. (DH 90:133).



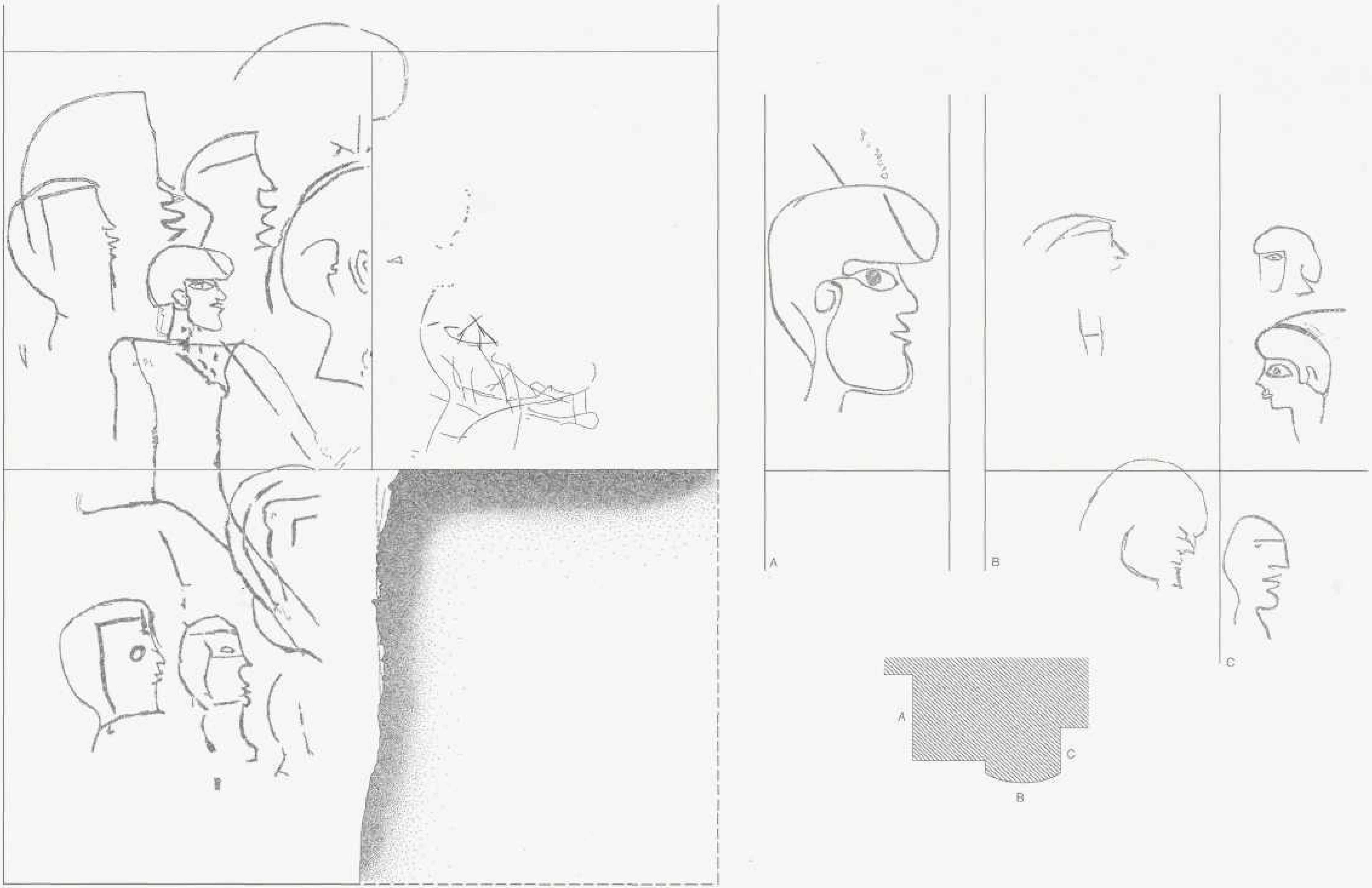
Pl. 23d. King's tomb. Detail of the graffiti on the north wall of the serdab. Photo G.D. (DH 90:339).



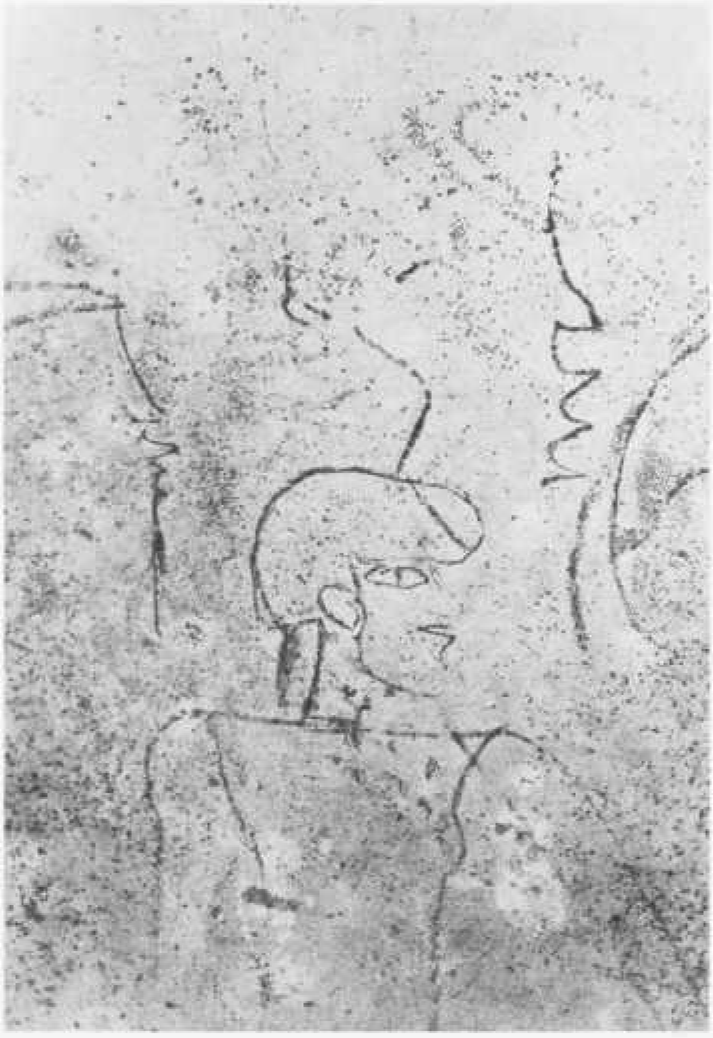
Pl. 24. King's tomb. Graffiti on the north wall of the serdab. Scale 1:10. Drawing T.S. from drawing by A.O.



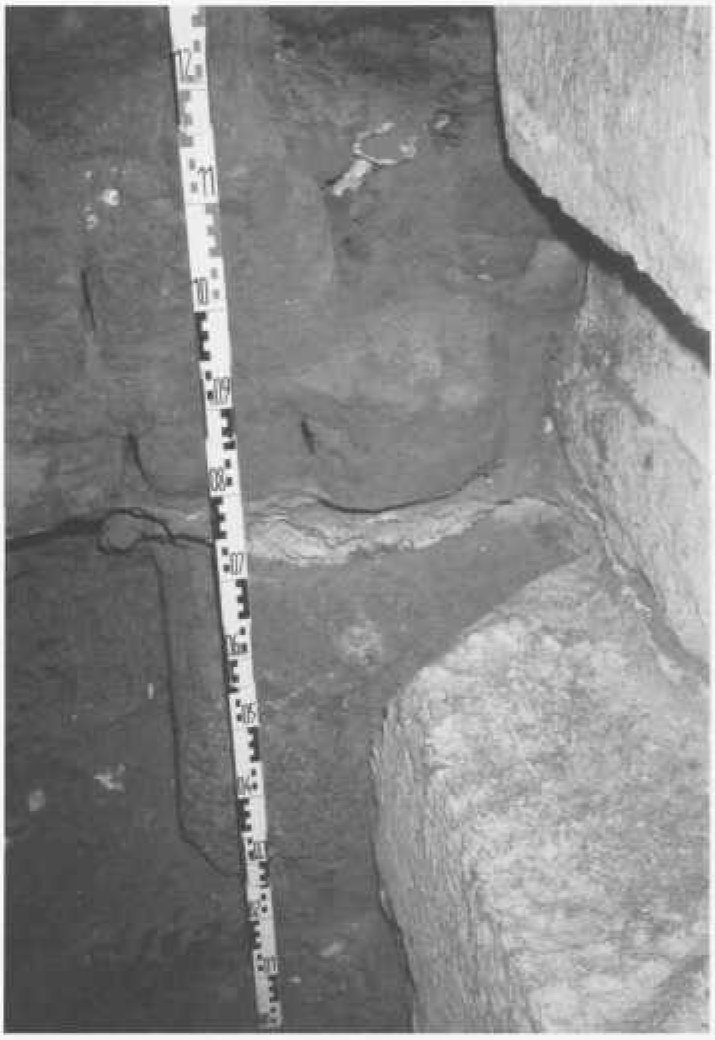
Pl. 25. King's tomb. Graffiti on the south wall of the serdab. Scale 1:10. Drawing T.S. from drawing by A.O.



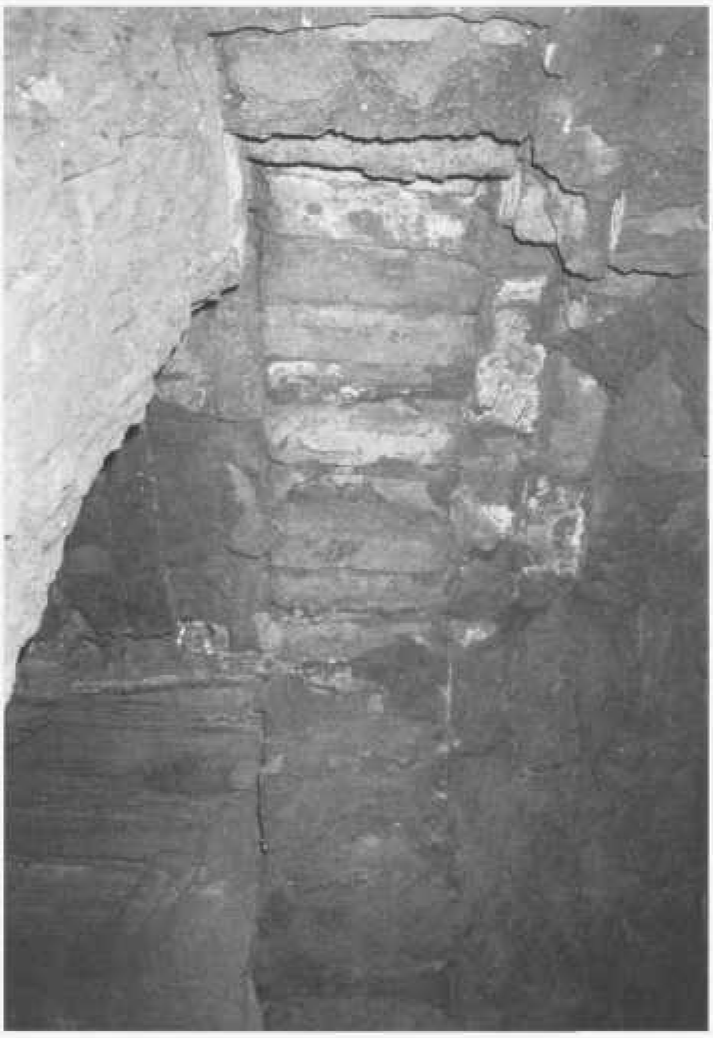
Pl. 26. King's tomb. Graffiti on the east wall and the north doorframe of the serdab. Scale 1:10. Drawing T.S. from drawing by A.O.



Pl. 27a. King's tomb. Graffiti on the east wall of the serdab. Photo B.S. (DH 97:53).



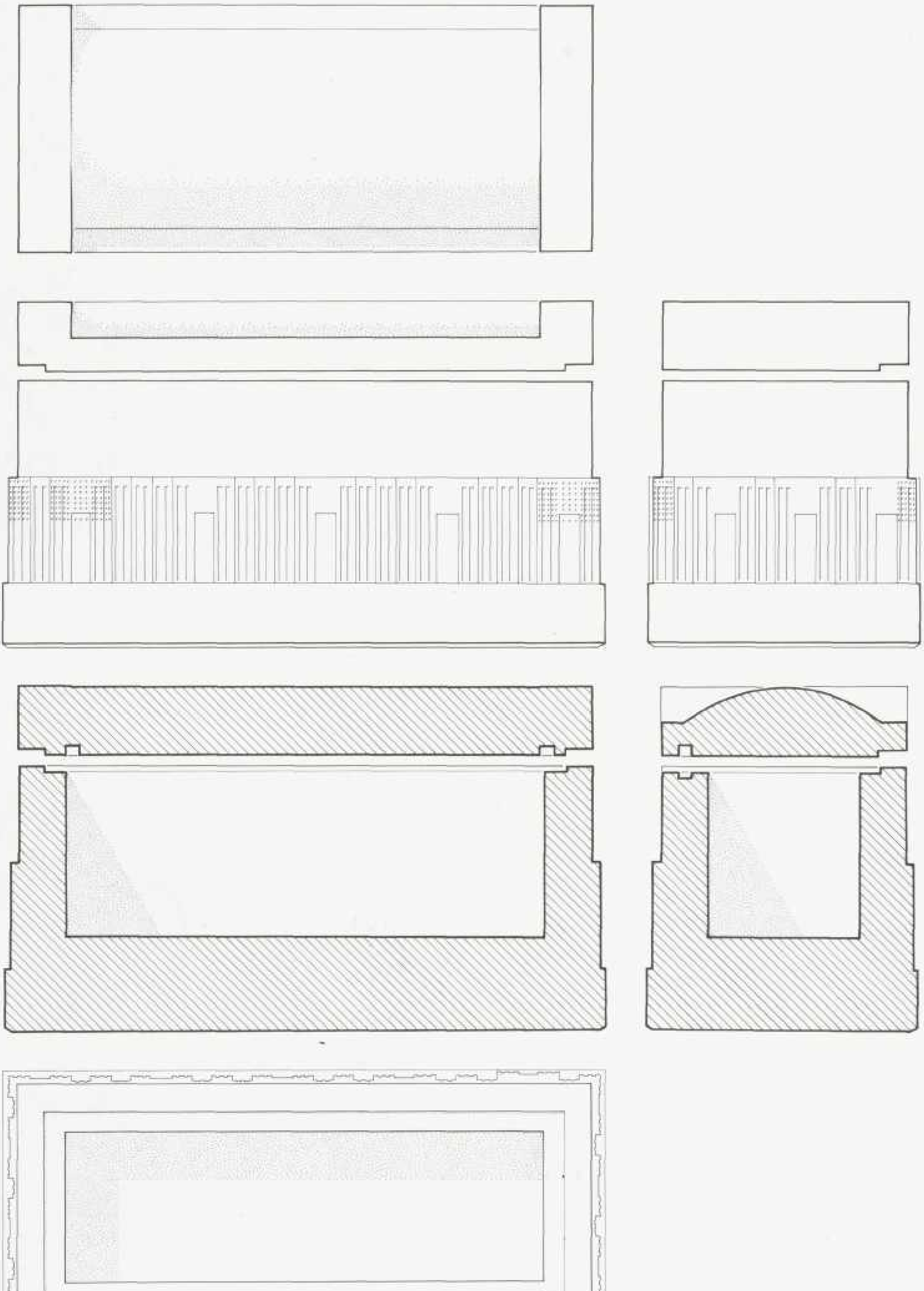
Pl. 27b. King's tomb. Southwest outer corner of the crypt roof, with limestone blocks of the gable roof (right) and the end block of the granite roof (behind the meter stick). Photo D.A. (DH 94:588).



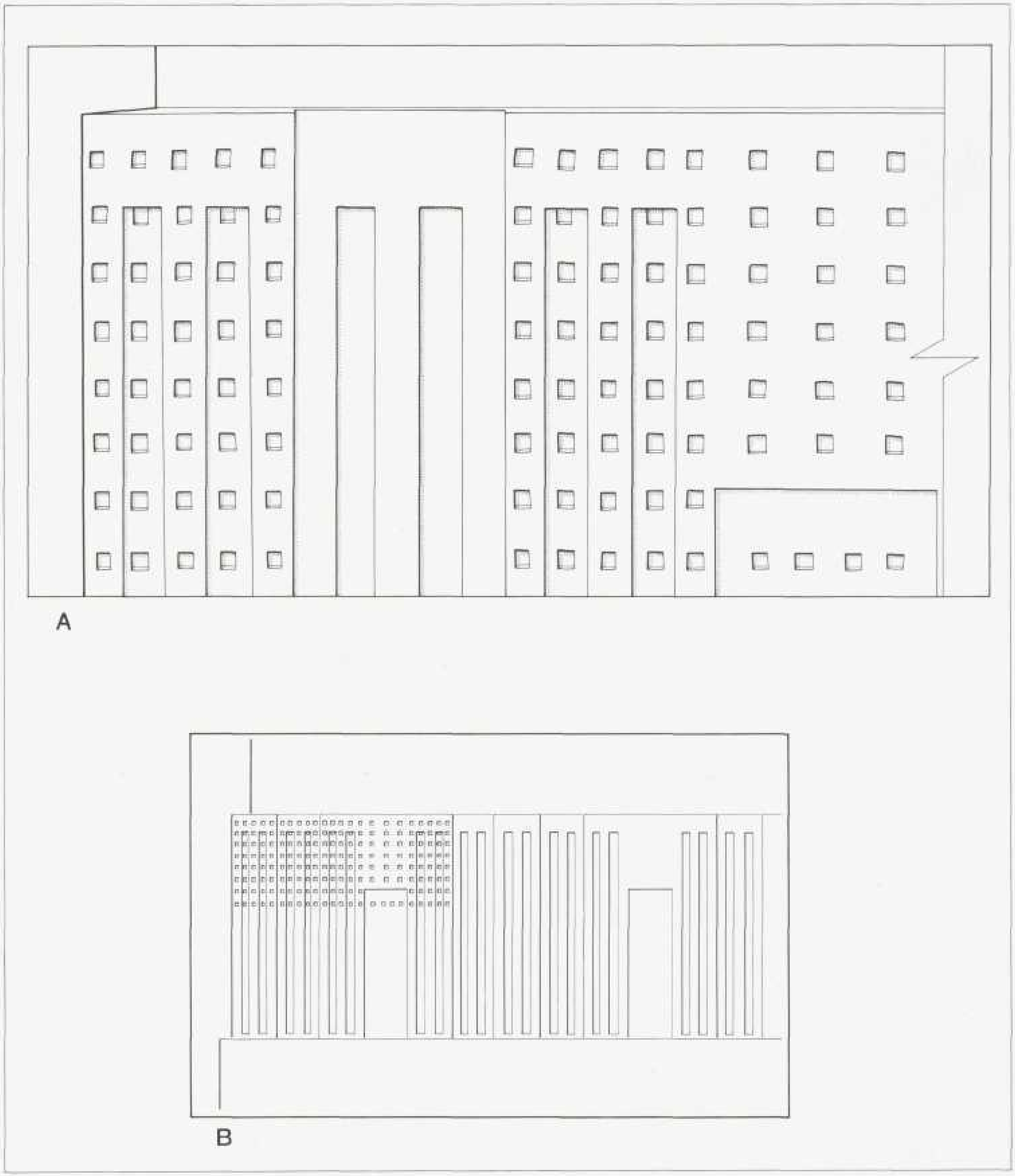
Pl. 27c. King's tomb. View up into the rings of the brick vault in the southeast corner of the construction shaft above the crypt. See fig. 11. Photo D.A. (DH 94:551).

Pl. 27d. King's tomb. Top of the east end of the limestone gable roof above the crypt, facing north. Photo D.A. (DH 94:639).

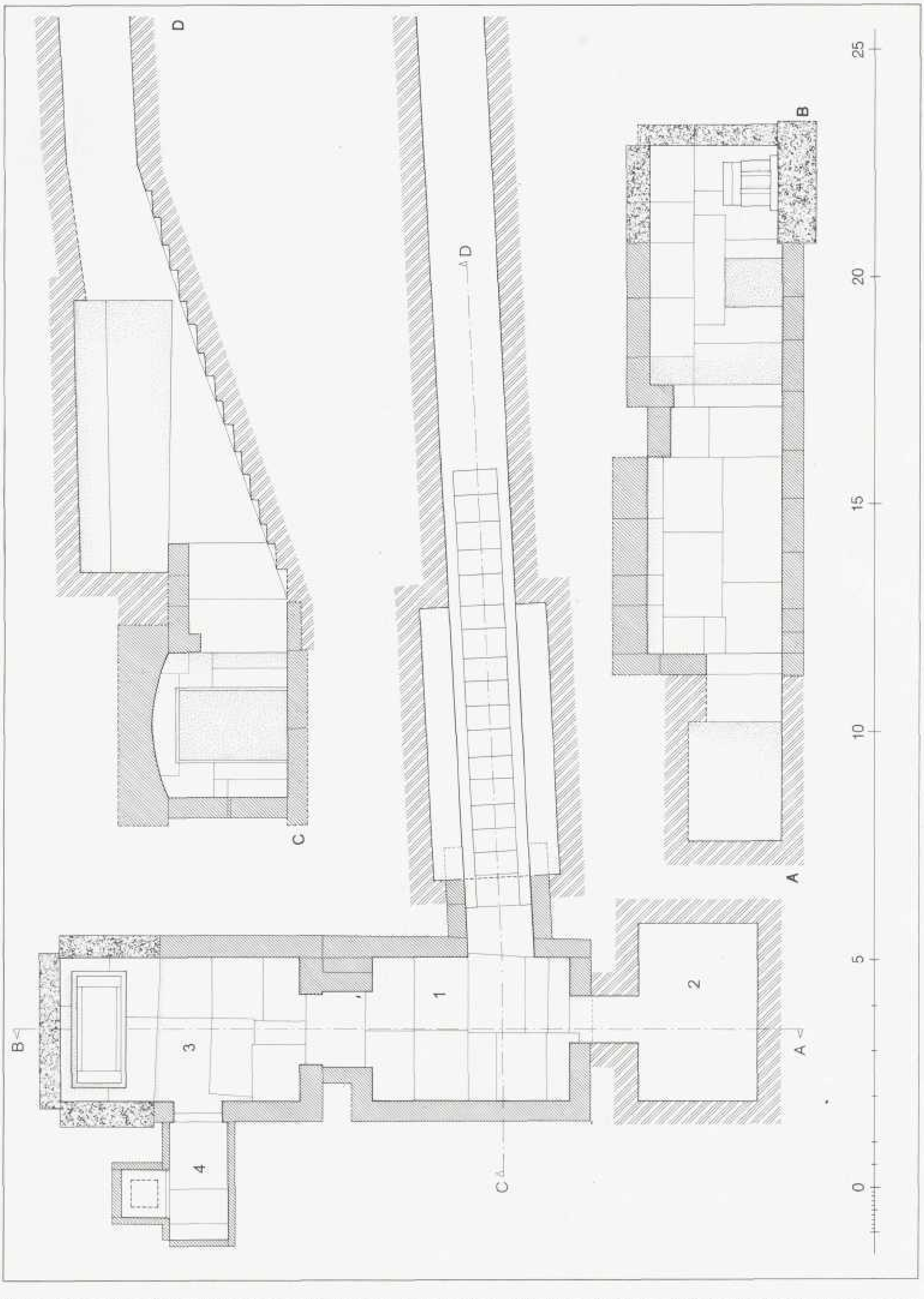
PLATE 28



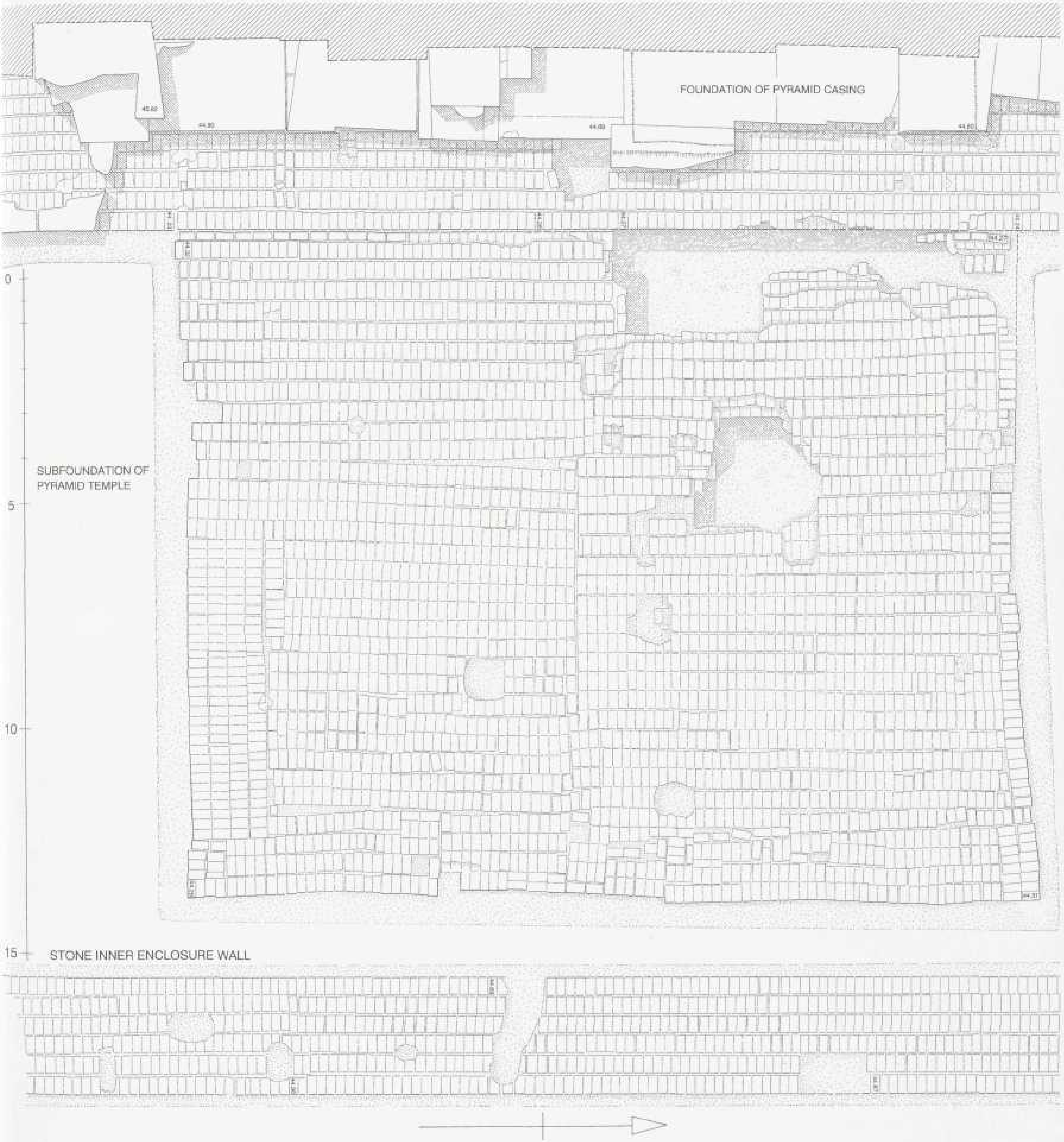
Pl. 28. King's tomb. Top view, elevations, sections, and plan of the red granite sarcophagus. Scale 1:20. Drawings R.V. from drawings by J.P.



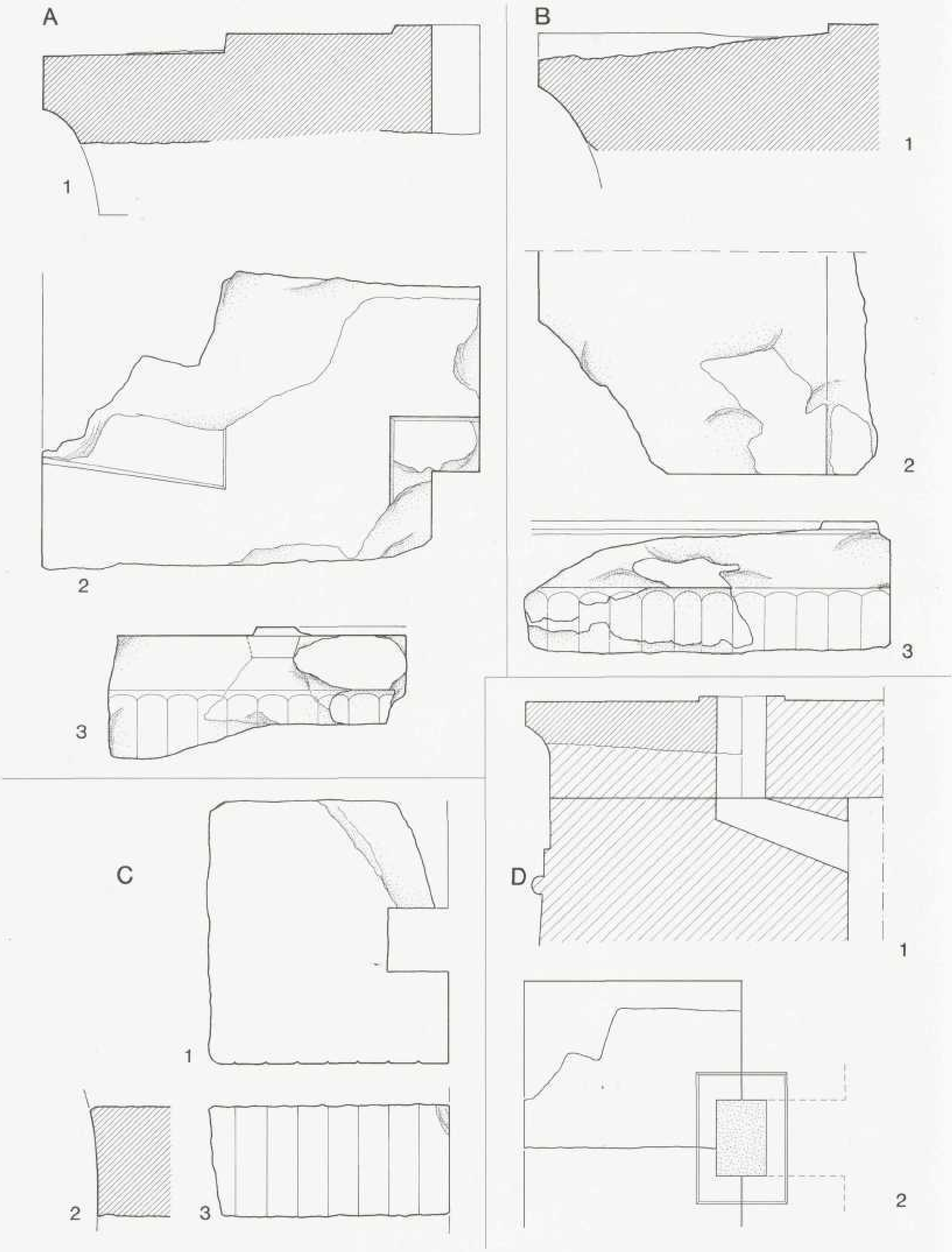
Pl. 29. King's tomb. Details of the south end of the east side of the sarcophagus. See pl. 20a–c. Scales 1:2 (A) and 1:10 (B). Drawings R.V. from drawings by J.P.



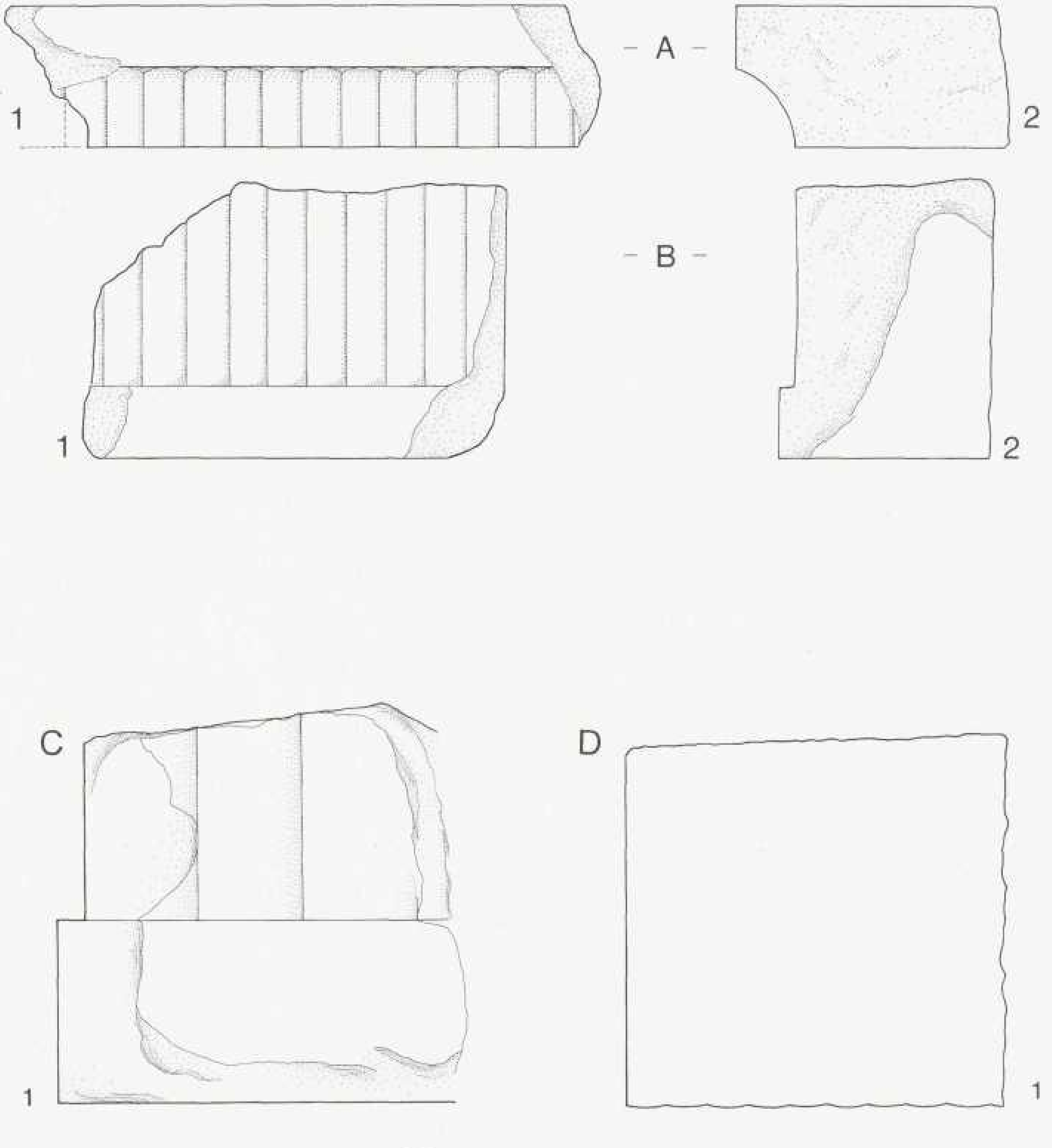
Pl. 30. Plan and sections of tomb 621 at Lahun. 1) Antechamber. 2) Serdab. 3) Crypt. 4) Canopic chamber. Scale 1:100. Drawing D.A. after Petrie, *Lahun* II, pl. 22.


FOUNDATION OF PYRAMID CASING
SUBFOUNDATION OF PYRAMID TEMPLE
STONE INNER ENCLOSURE WALL
0
5
10
15

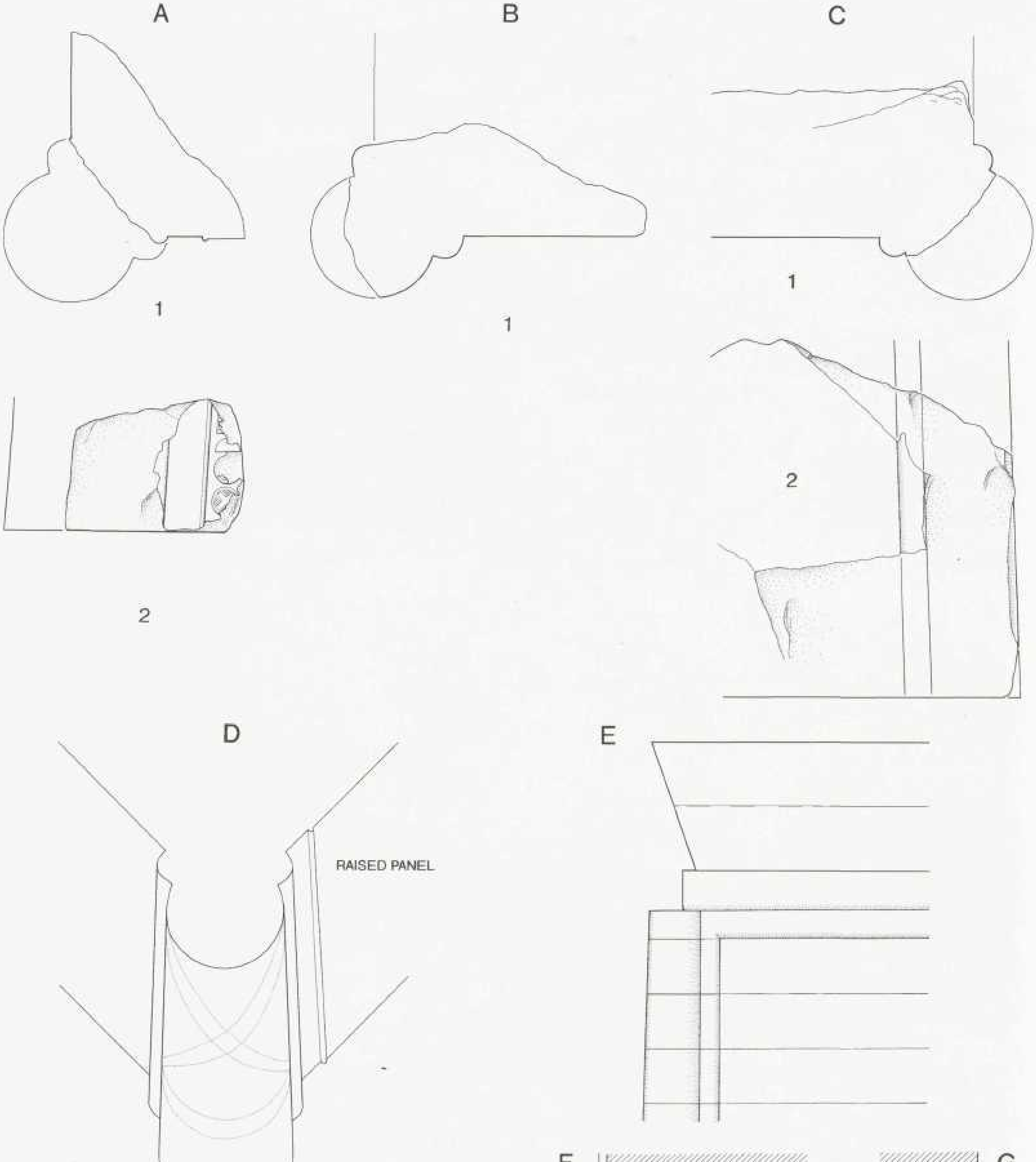
Pl. 31. Plan of the foundation of the pyramid east side and the subfoundations of the pyramid temple and the inner enclosure wall. Scale 1:100. Drawing D.A.



Pl. 32. Three cavetto cornice blocks from the exterior of the pyramid temple. *A)* Section [1], top view [2], and front view [3]. *B)* Section [1], top view [2], and front view [3]. *C)* Top view [1], section [2], and front view [3]. *D)* Block A, reconstructed section [1] and top view [2] with a suggested light shaft. Scales 1:10 (A–C), 1:20 (D). Drawings B.G. from drawings by B.G. and D.A.

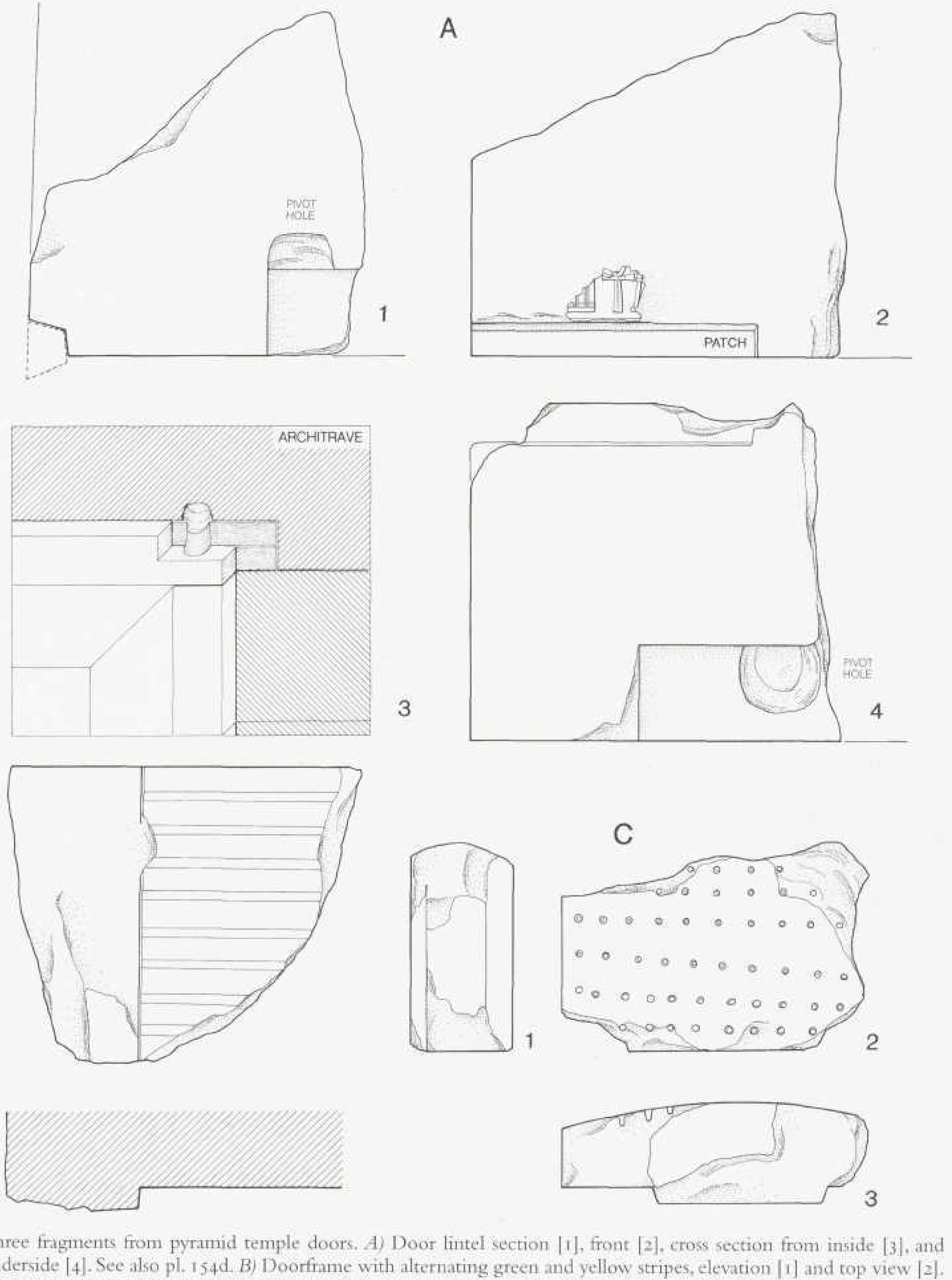


Pl. 33. Four cavetto cornice fragments from the exterior of the pyramid temple. *A)* Front view [1] and side view [2]. *B)* Front view [1] and side view [2]. *C)* Front view [1] and top view [2]. *D)* Top view [1], front view [2], and detail [3]. Scales 1:10 (A, B, D), 1:4 (C). Drawings B.G. from drawings by D.A.

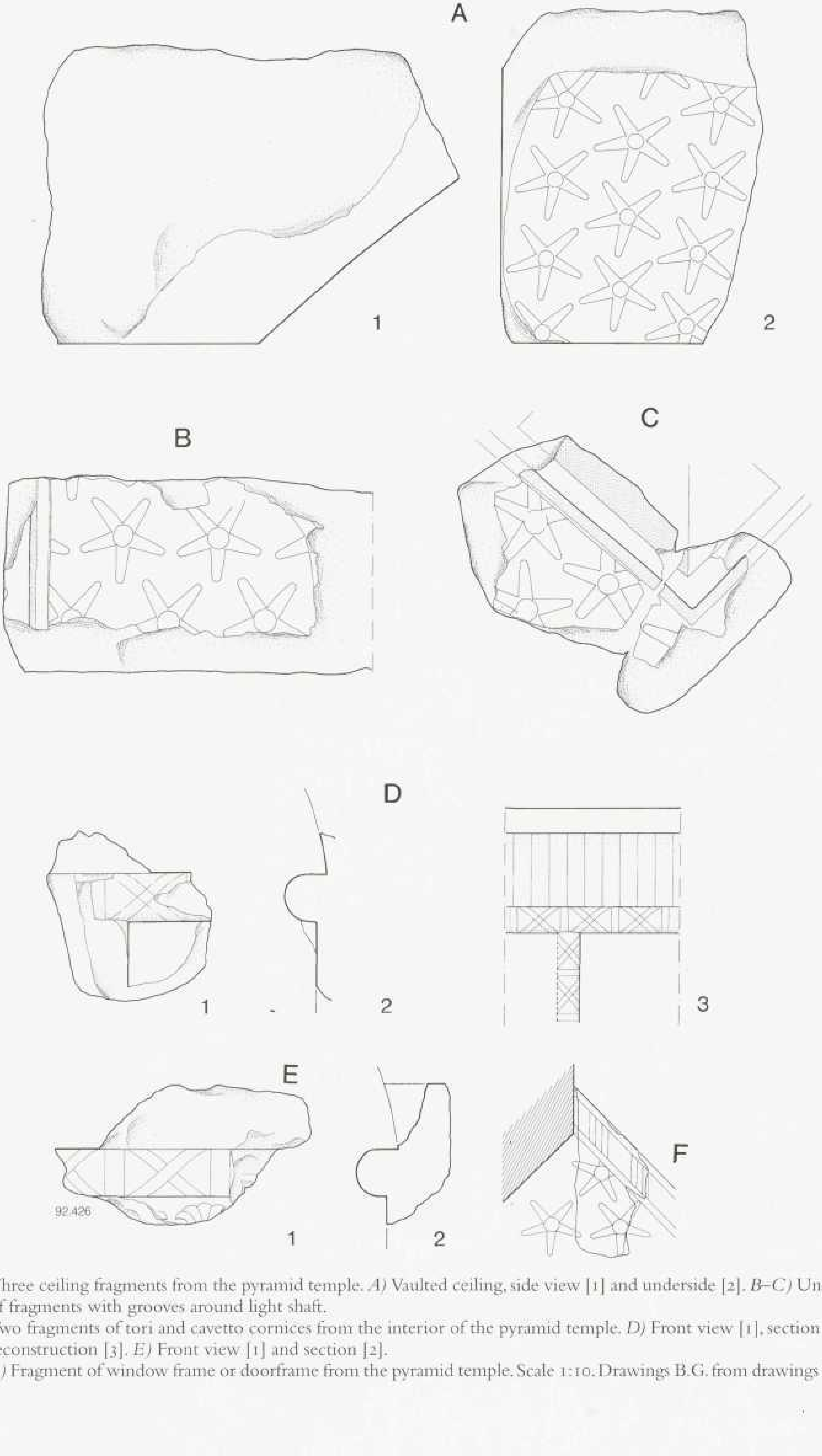


Pl. 34. Three fragments of the triple corner torus from the exterior of the pyramid temple. *A–C)* Top view [1] and elevation [2]. See also pl. 157b. *D)* Isometric reconstruction of a corner block.

E–G) Parallels from chapels in the Djoser complex. Scales 1:10 (A–C), no scale (D–G). Drawings B.G. from drawings by D.A. Drawing A [2] by T.S.



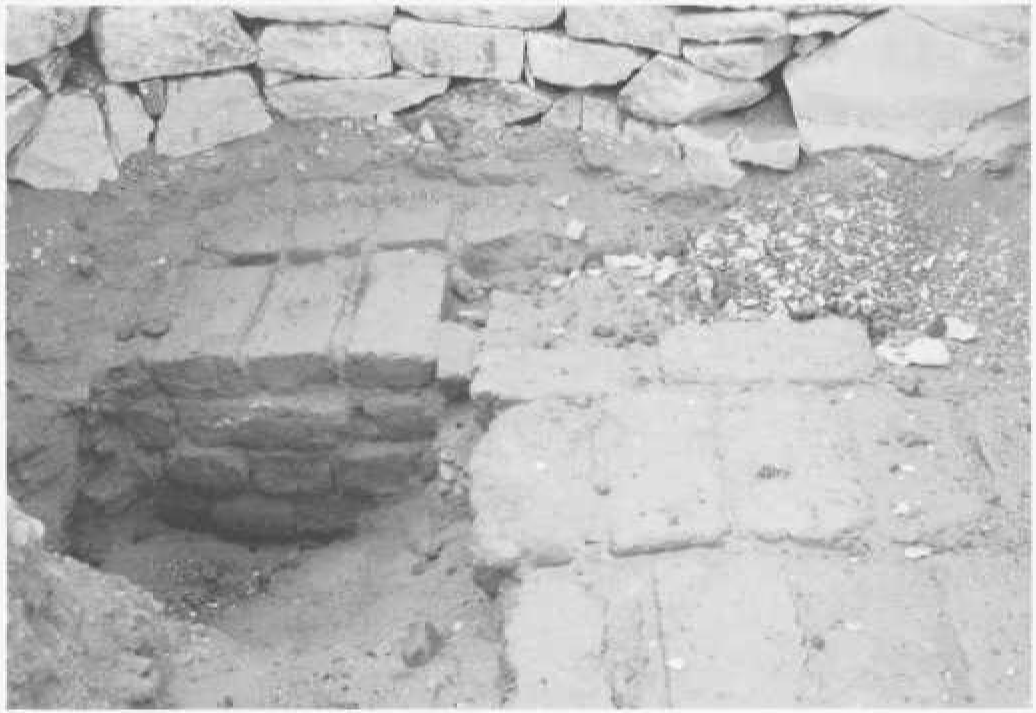
Pl. 35. Three fragments from pyramid temple doors. *A)* Door lintel section [1], front [2], cross section from inside [3], and underside [4]. See also pl. 154d. *B)* Doorframe with alternating green and yellow stripes, elevation [1] and top view [2]. *C)* Doorframe with peg holes for gilding, side view [1], curved surface [2], and cross section [3]. Scale 1:10. Drawings B.G. from drawings by D.A.



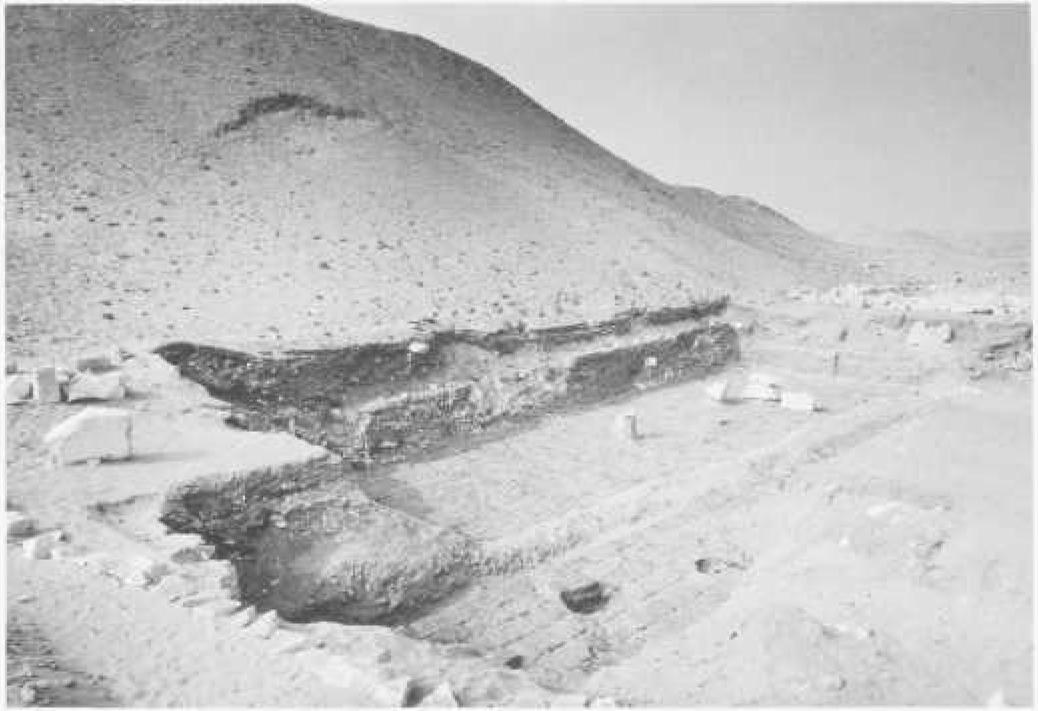
Pl. 36. Three ceiling fragments from the pyramid temple. *A)* Vaulted ceiling, side view [1] and underside [2]. *B–C)* Undersides of fragments with grooves around light shaft.

Two fragments of tori and cavetto cornices from the interior of the pyramid temple. *D)* Front view [1], section [2], and reconstruction [3]. *E)* Front view [1] and section [2].

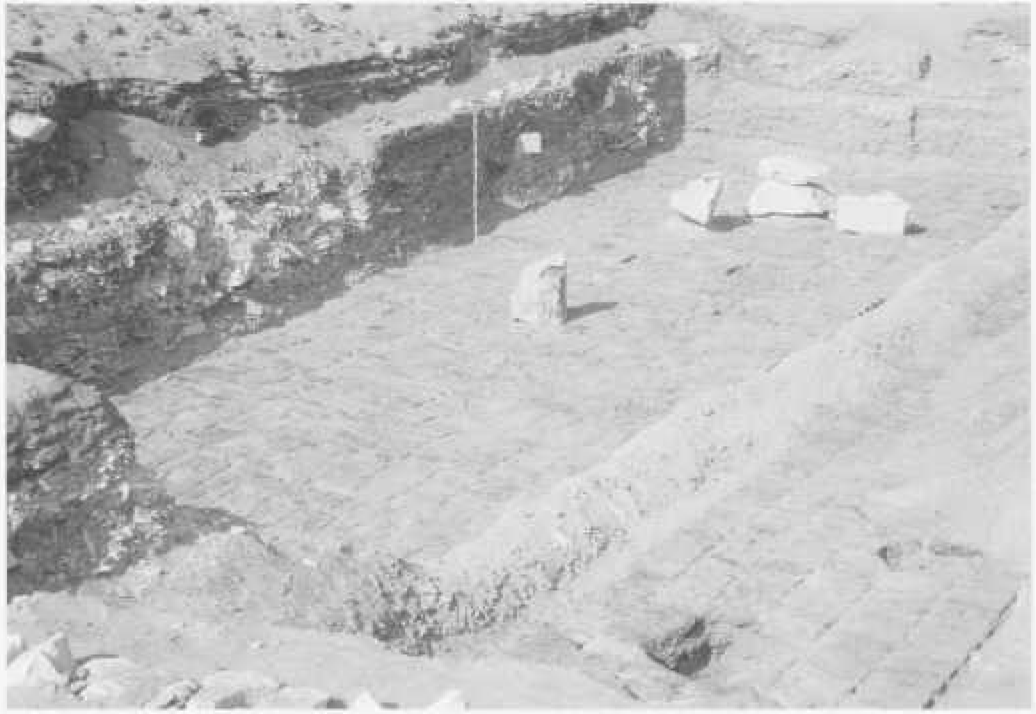
F) Fragment of window frame or doorframe from the pyramid temple. Scale 1:10. Drawings B.G. from drawings by D.A.



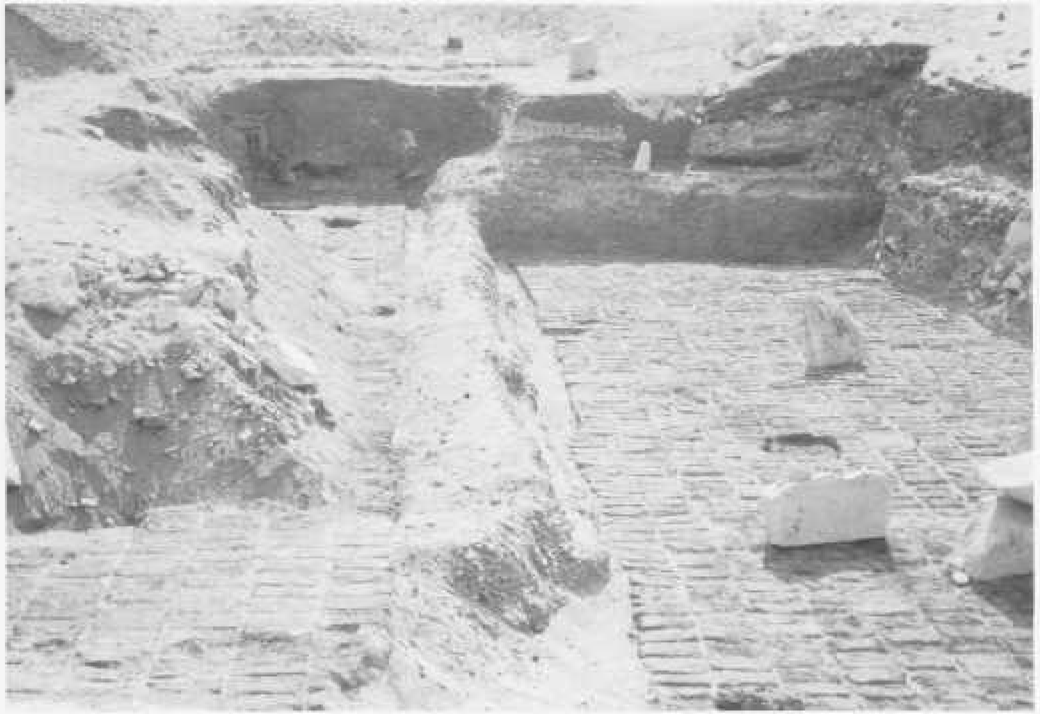
Pl. 37a. Separation between the subfoundations of the pyramid and pyramid temple at the southwest corner of the pyramid temple (1994), facing west. Photo D.A. (DH 94:587).



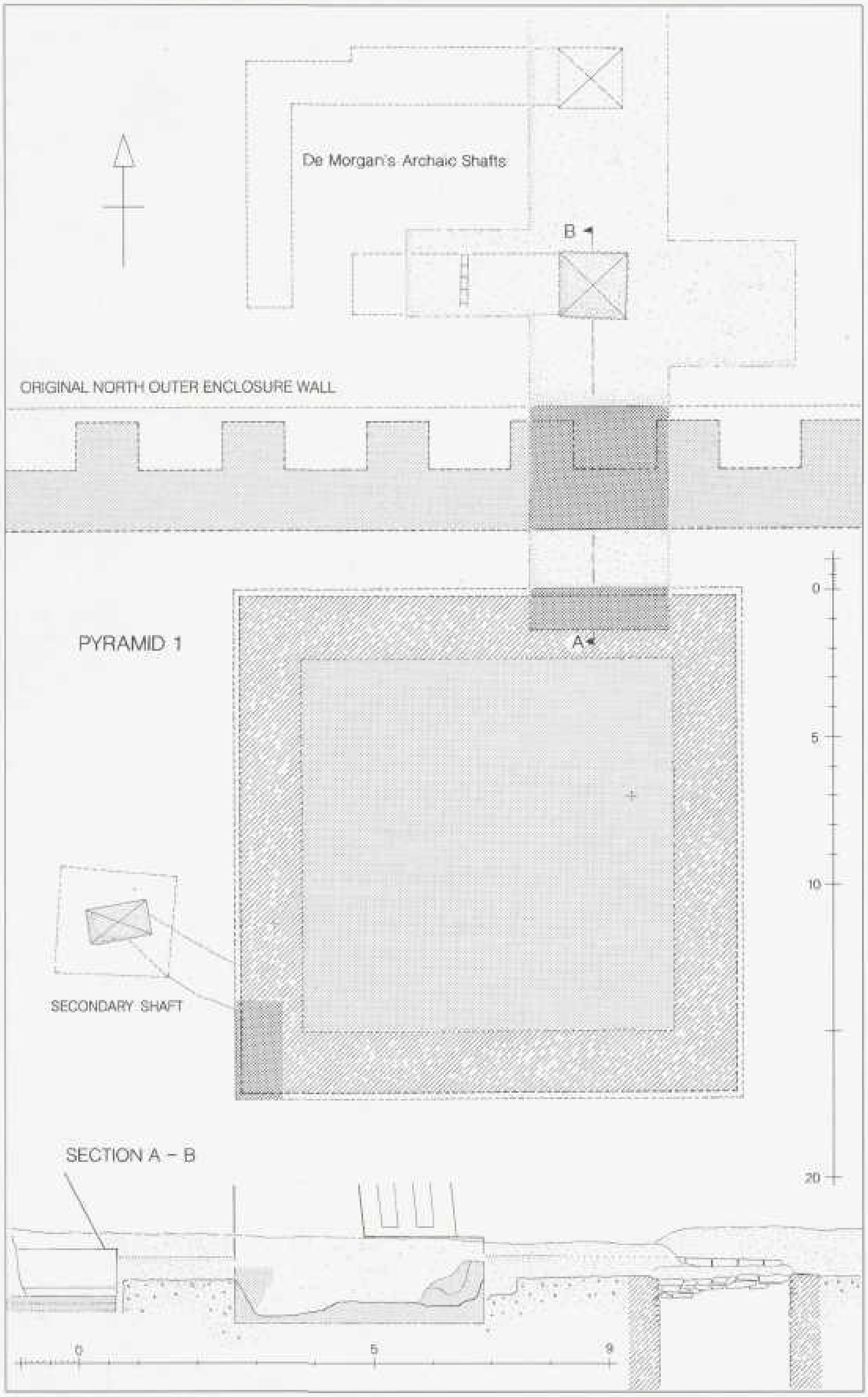
Pl. 37b. Excavation of the pyramid temple and inner enclosure wall subfoundations (1993), facing northwest. Photo A.O. (DH 93:12).



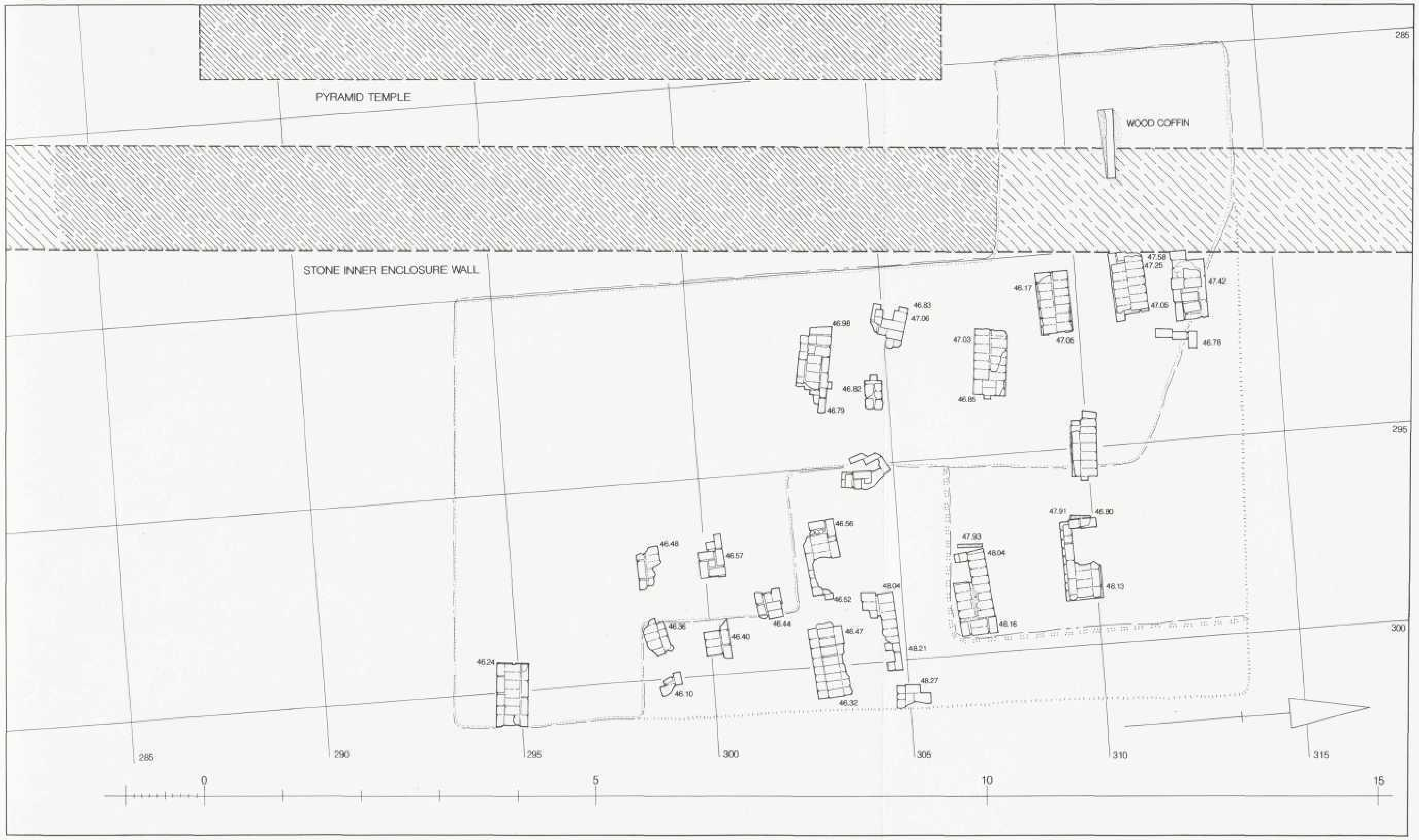
Pl. 37c. Subfoundations of the pyramid temple and inner enclosure wall (1993), facing northwest. Photo D.A. (DH 93:466).



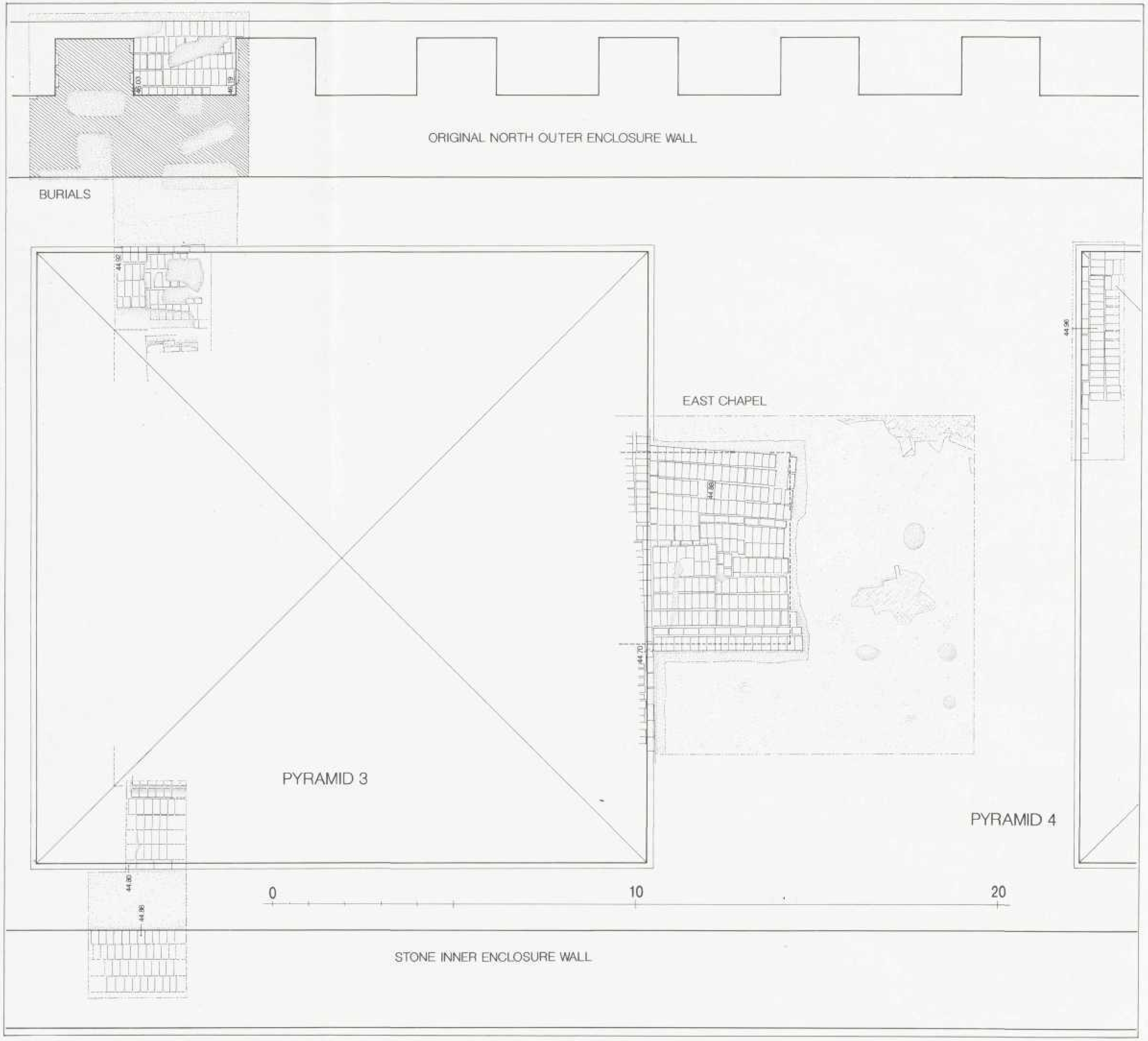
Pl. 37d. Subfoundations of the inner enclosure wall (left) and pyramid temple (1993), facing south. Photo D.A. (DH 93:464).


De Morgan's Archaic Shafts
B
ORIGINAL NORTH OUTER ENCLOSURE WALL
PYRAMID 1
A
SECONDARY SHAFT
SECTION A – B
0
5
10
20
0
5
9

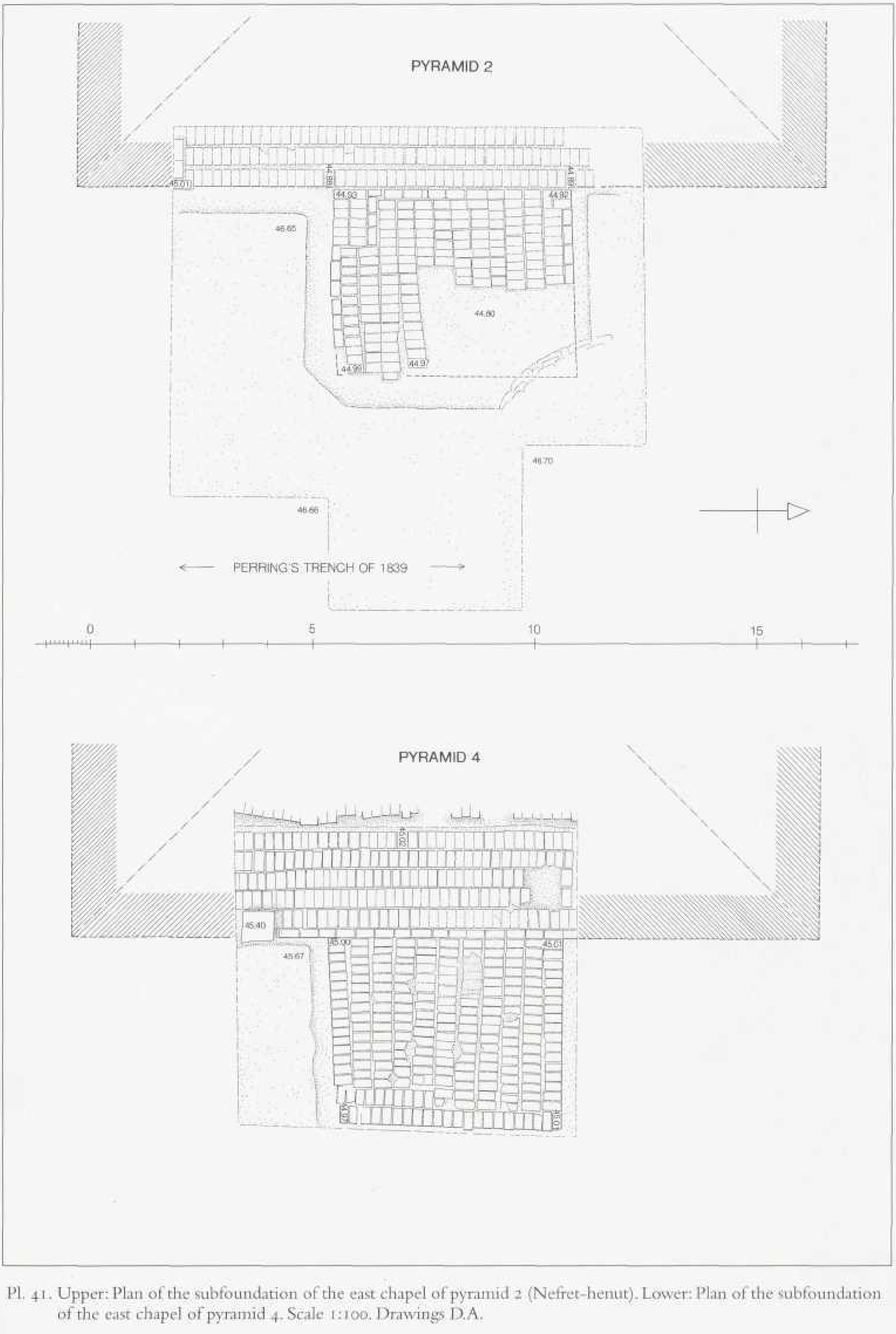
Pl. 38. Plan and south-north section through pyramid 1, the original north outer enclosure wall, and the Archaic tomb shafts. Scale 1:200. Drawing D.A.



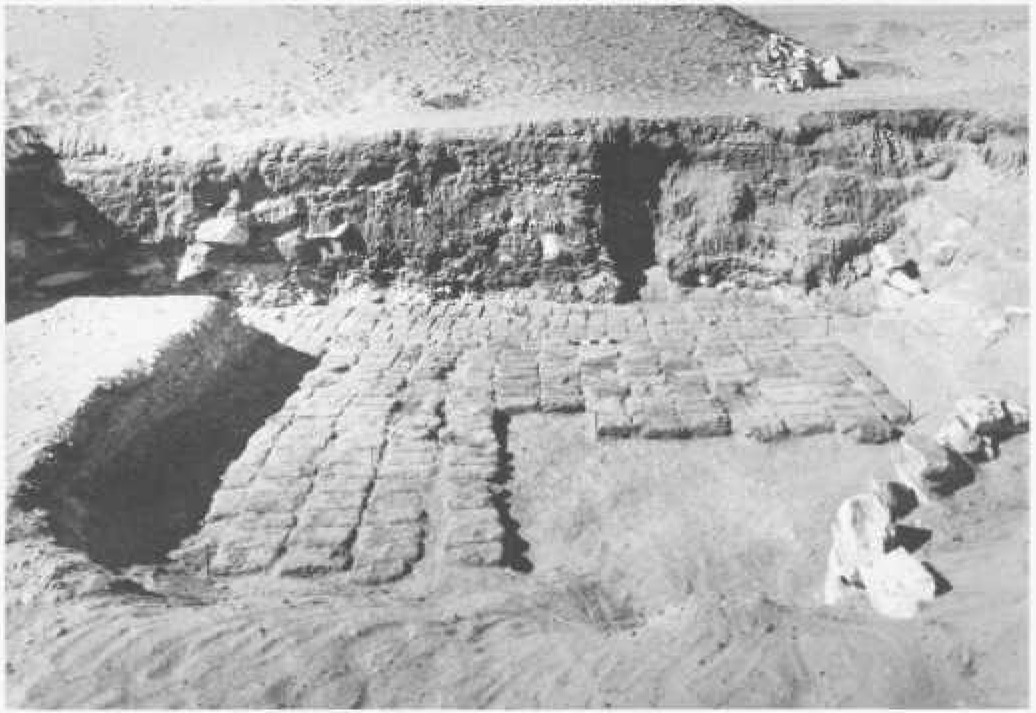
Pl. 39. Plan of the area east of the pyramid temple with post–New Kingdom burials. Scale 1:50. Drawing R.V. from drawing by D.A.


ORIGINAL NORTH OUTER ENCLOSURE WALL
BURIALS
EAST CHAPEL
PYRAMID 3
PYRAMID 4
0
10
20
STONE INNER ENCLOSURE WALL

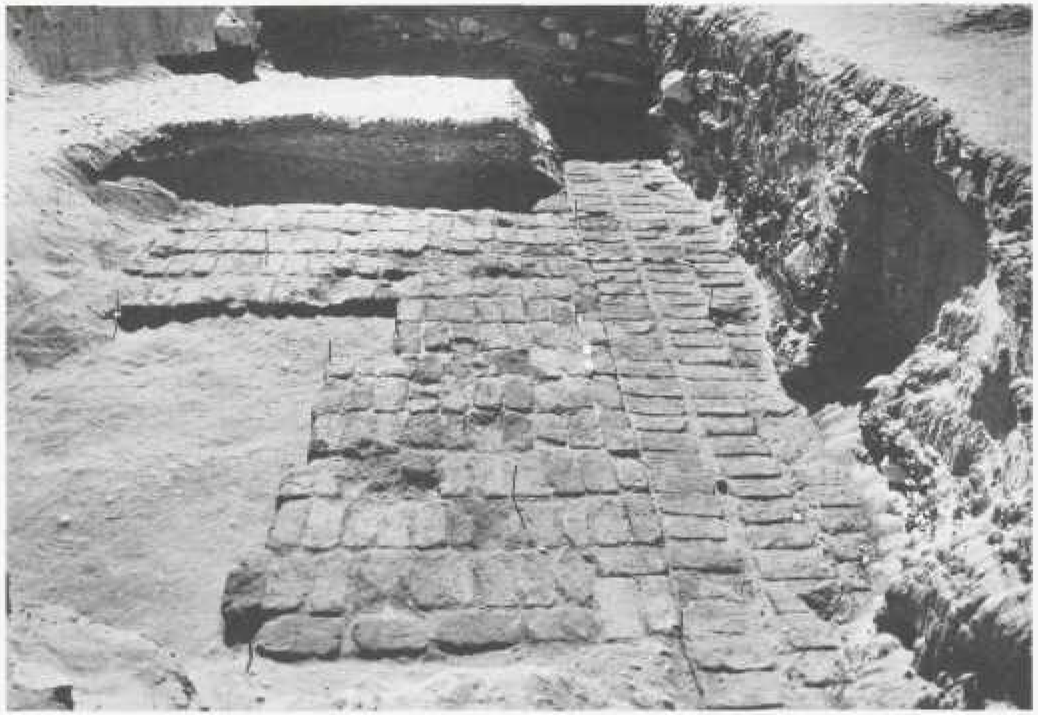
Pl. 40. Plan of the area of pyramid 3 (Itakayet). Scale 1:100. Drawing D.A.



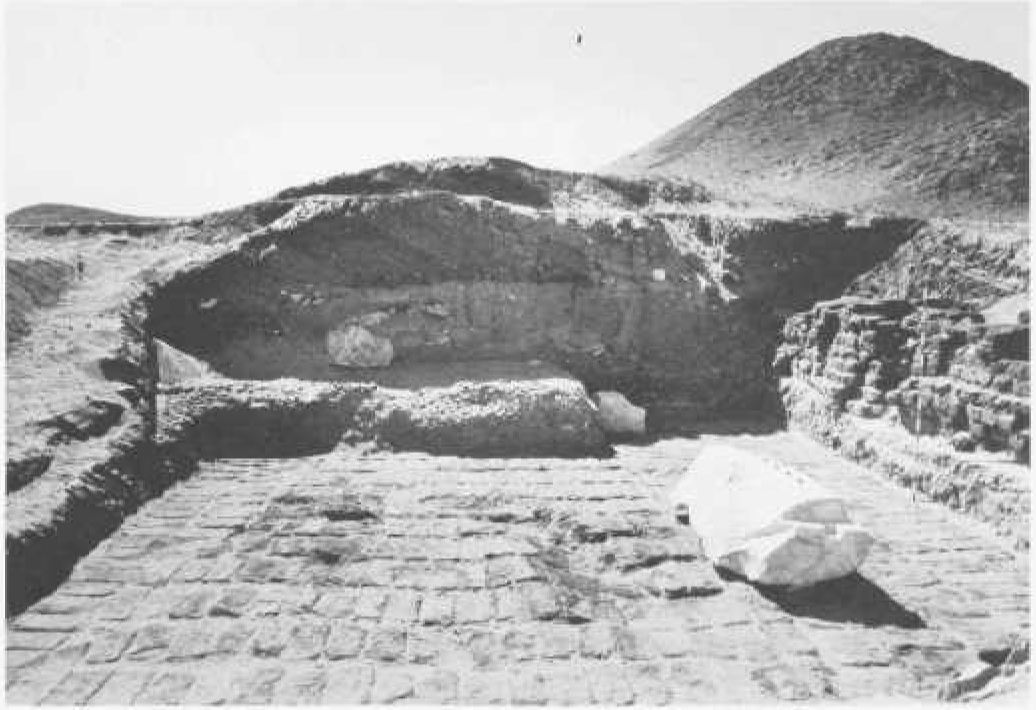
Pl. 41. Upper: Plan of the subfoundation of the east chapel of pyramid 2 (Nefret-henut). Lower: Plan of the subfoundation of the east chapel of pyramid 4. Scale 1:100. Drawings D.A.



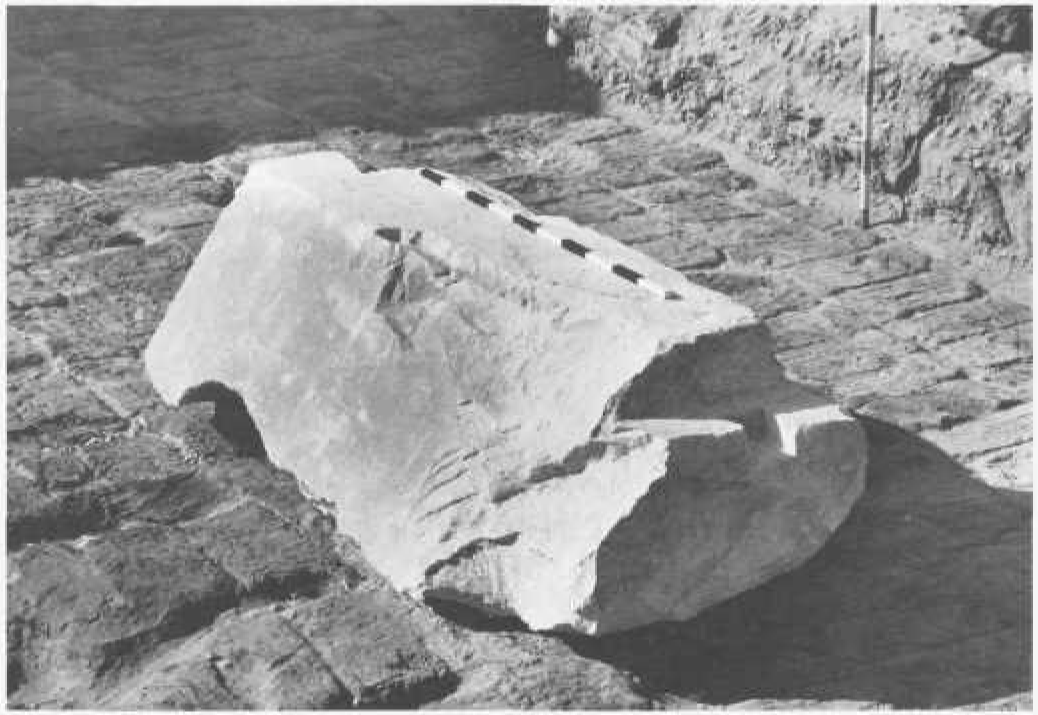
Pl. 42a. Pyramid 2 (Nefret-henut). East chapel, facing west. Photo A.K. (DH 97:105/24).



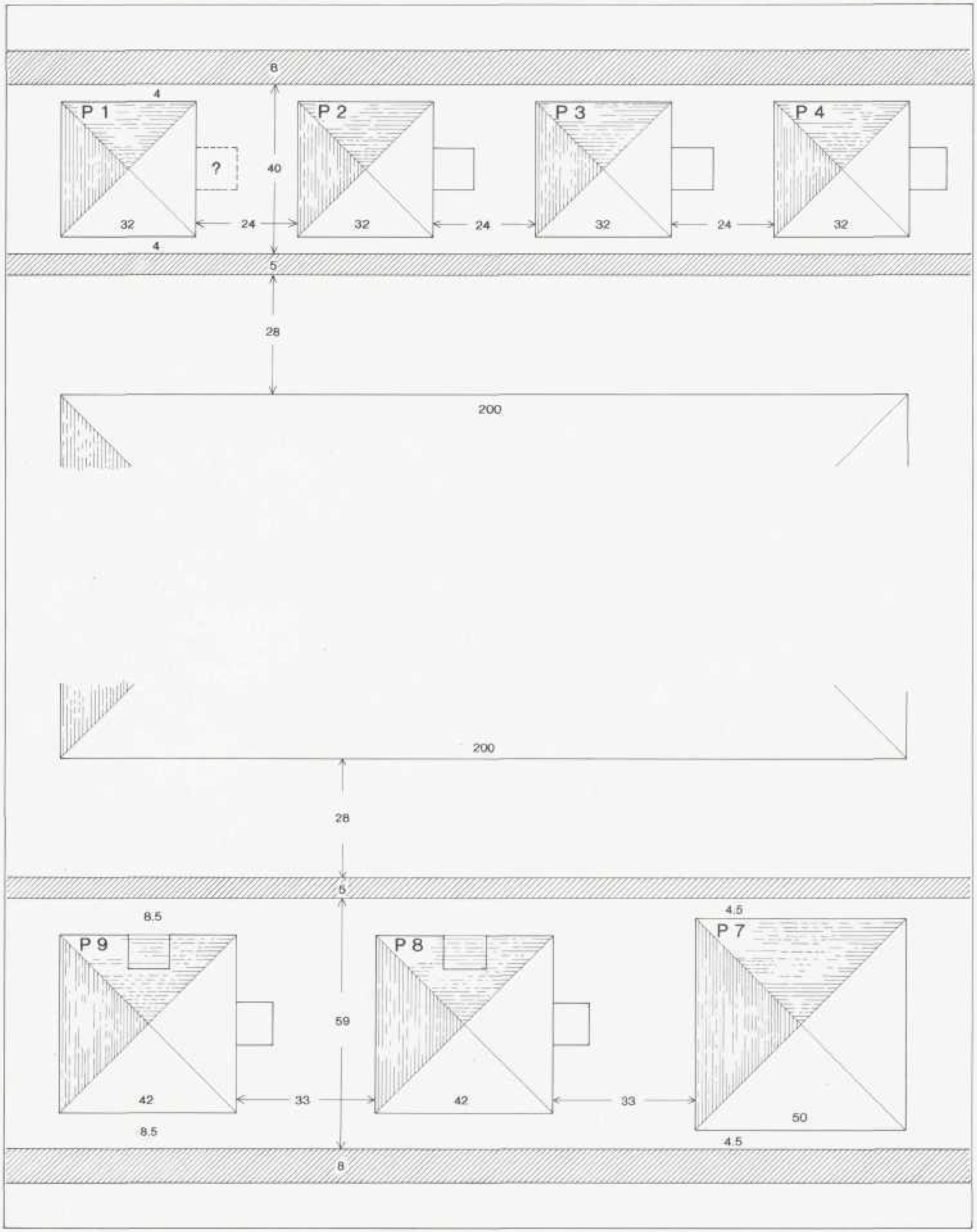
Pl. 42b. Pyramid 2 (Nefret-henut). East chapel, facing south. Photo A.K. (DH 97:105/30).



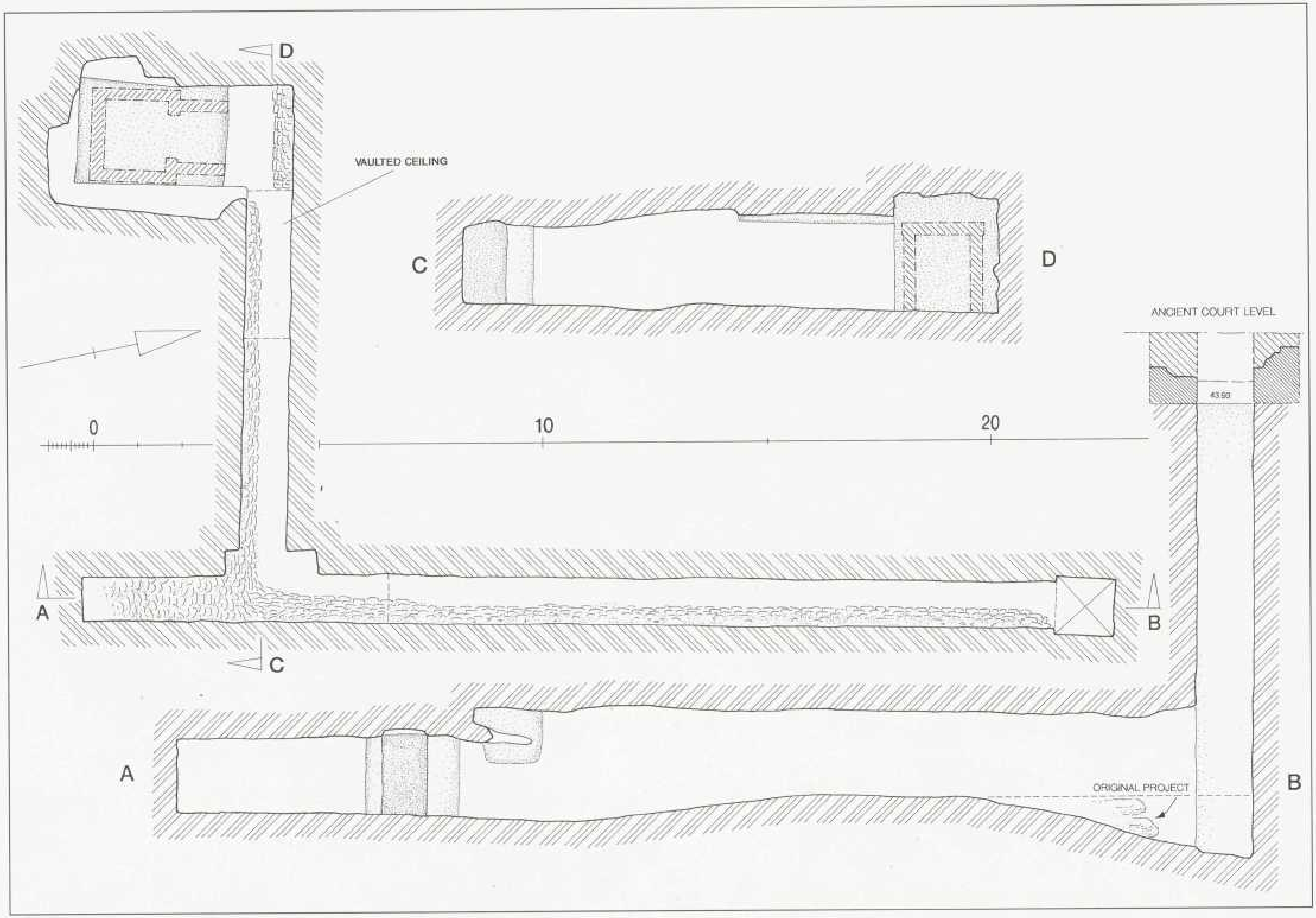
Pl. 42c. Pyramid 4. East chapel, facing south. Photo B.S. (DH 97:195).



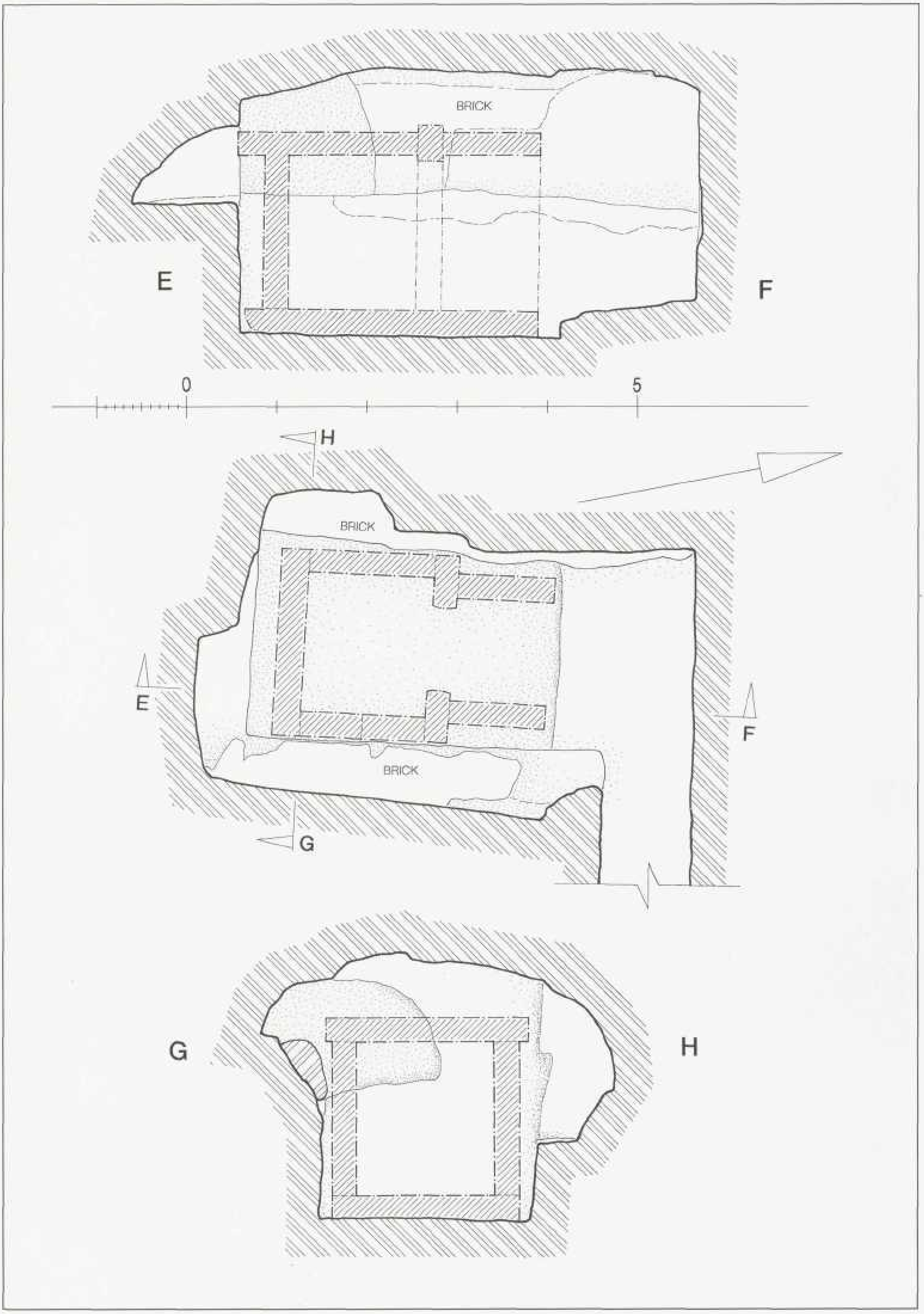
Pl. 42d. Pyramid 4. Pyramid casing block found in the area of the east chapel. Photo B.S. (DH 97:174).



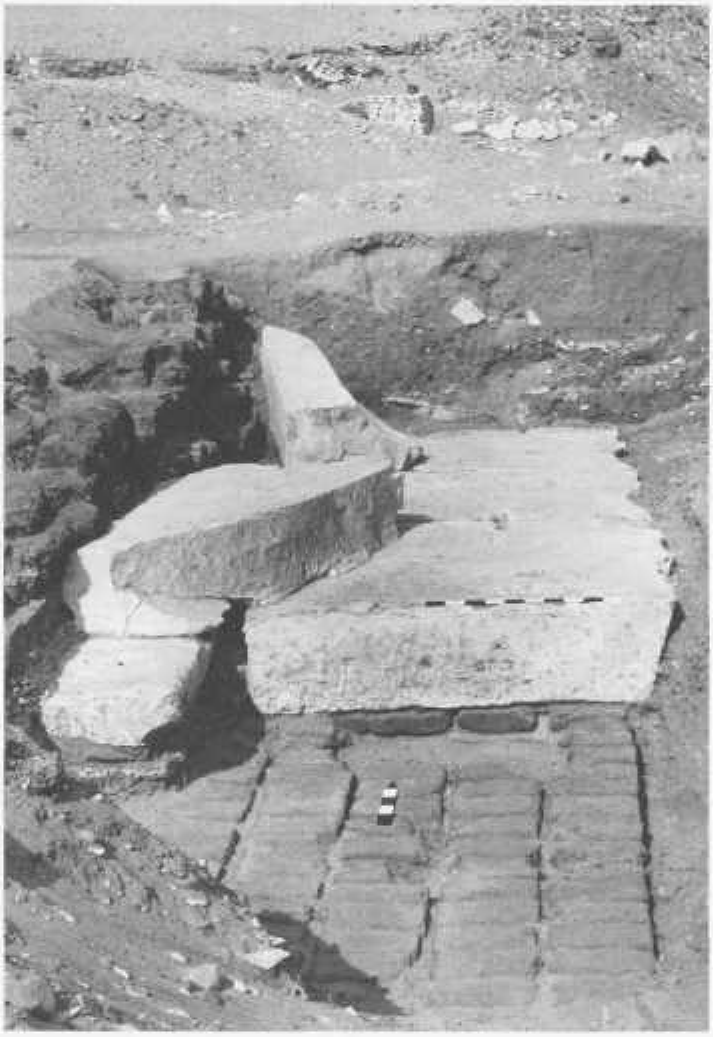
Pl. 43. Schematic plan with cubit measurements of the queens' pyramids north (1–4) and south (7–9) of the king's pyramid. Drawing D.A.



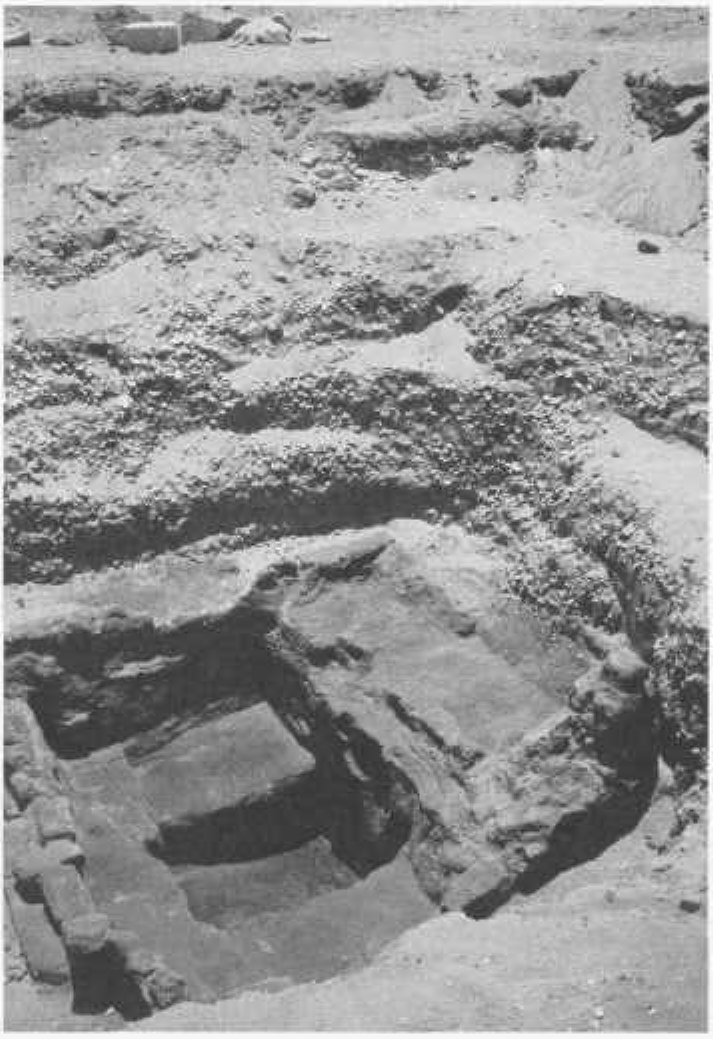
Pl. 44. Pyramid 7. Plan and sections of the south tomb. Scale 1:100. Drawing B.G.



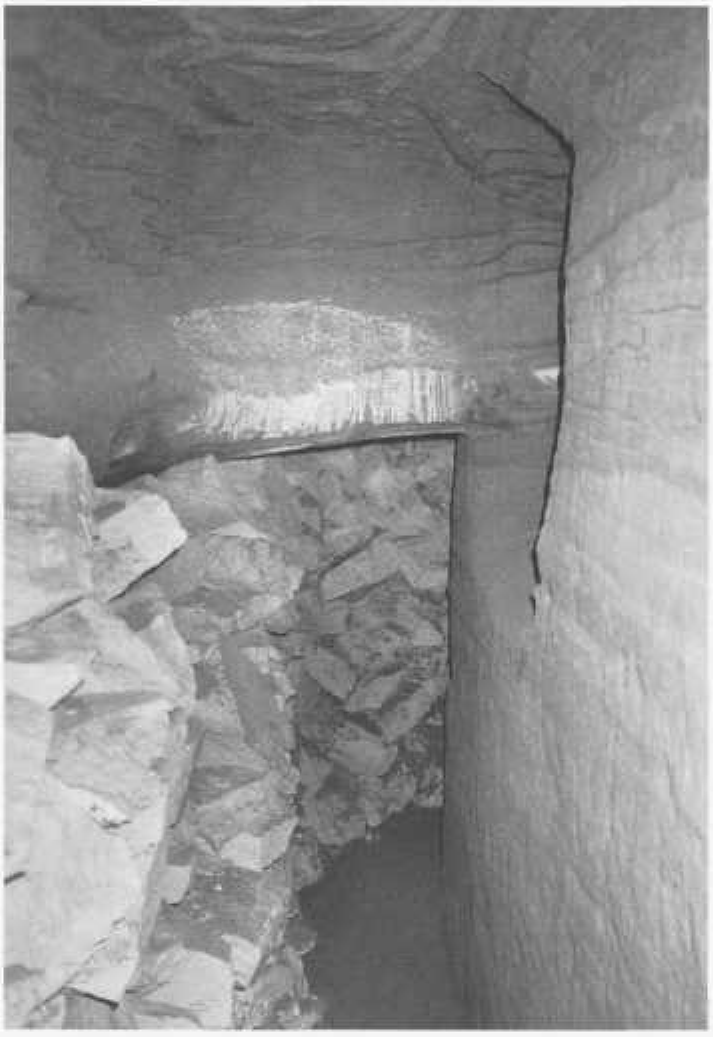
Pl. 45. Pyramid 7. Reconstructed plan (center) and sections of the chamber of the south tomb. Scale 1:50. Drawing B.G. after De Morgan, *Dahchour* I, p. 75, fig. 177.



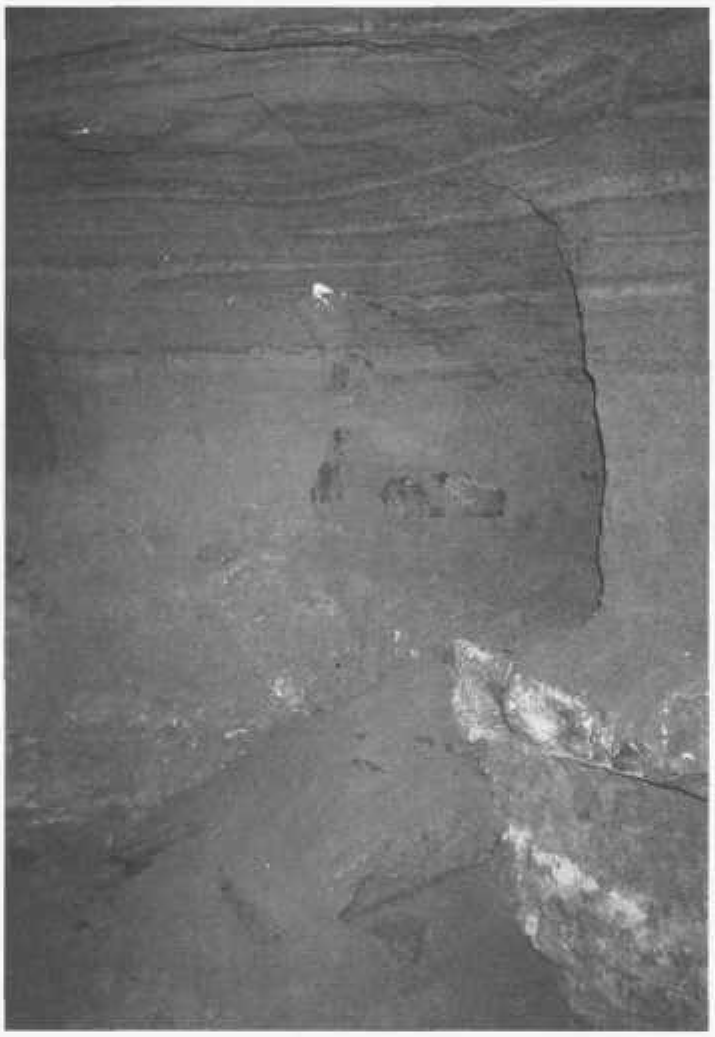
Pl. 46a. Pyramid 7. Foundation blocks and brick subfoundation at the center of the east side, facing north. Photo A.K. (DH 97:60/4A).



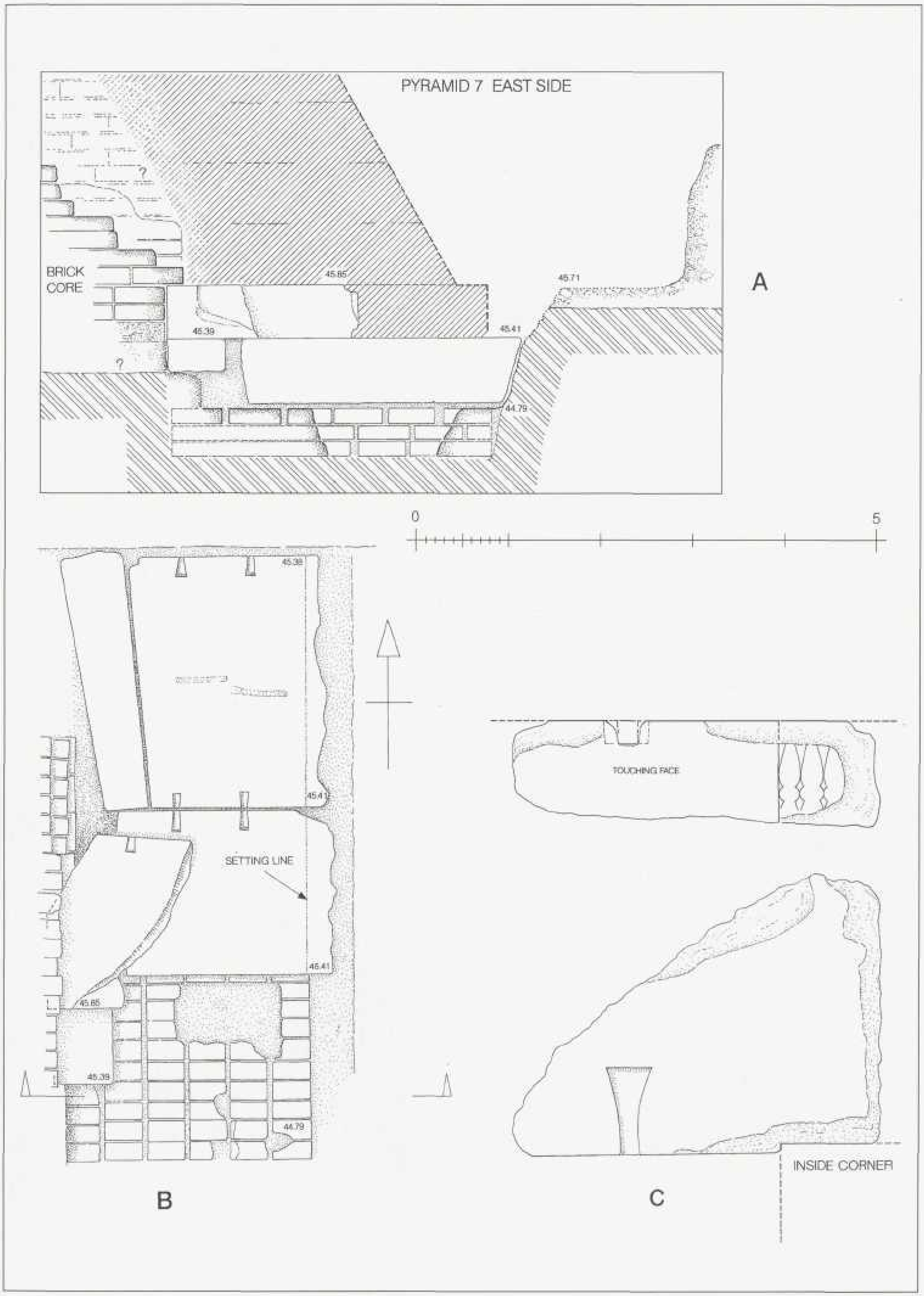
Pl. 46b. Pyramid 7. *Gebel* and debris layers on top of the brick-lined mouth of the shaft, facing southwest. Photo D.A. (DH 95:591).



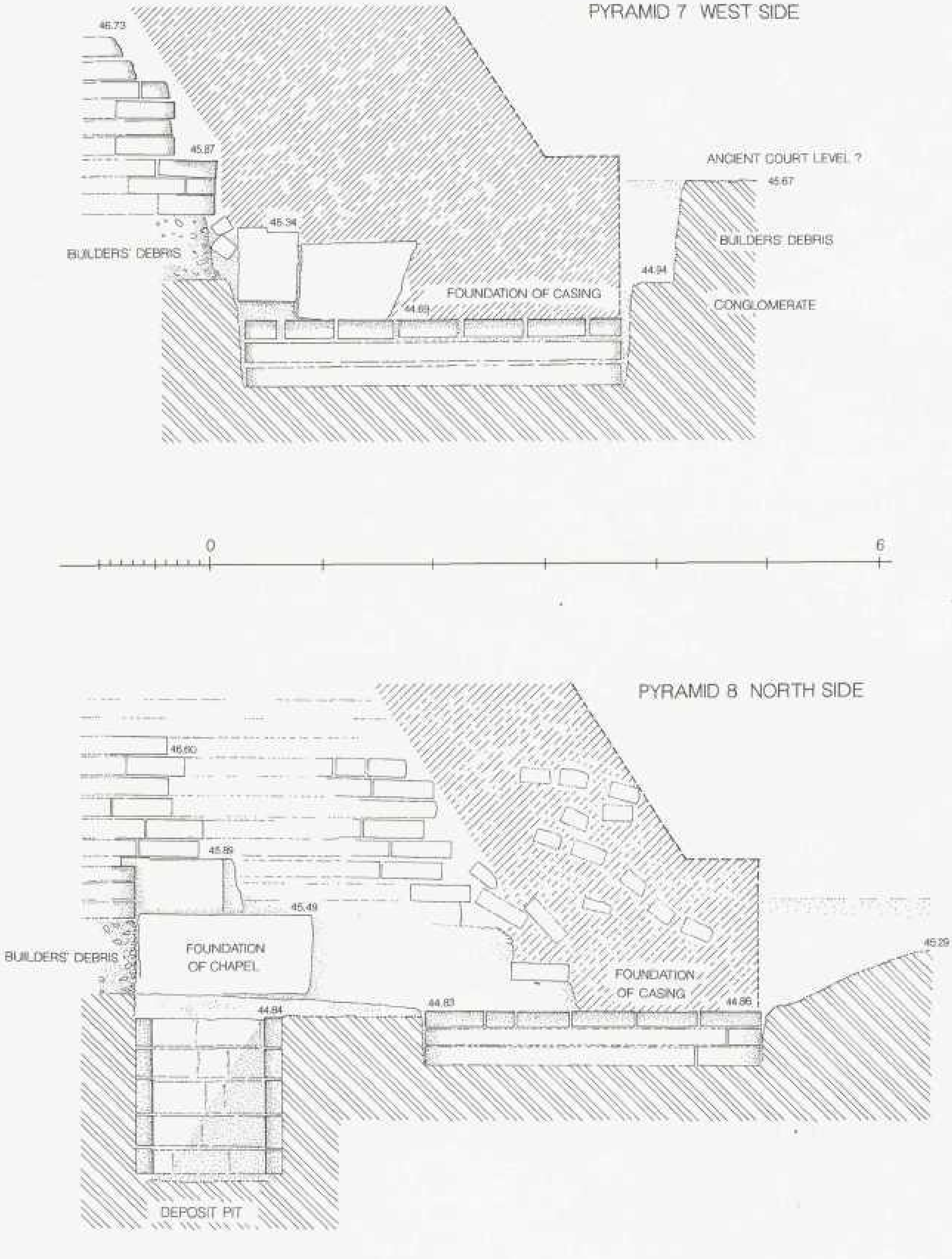
Pl. 46c. Pyramid 7. Southeast corner of the south corridor, filled with limestone debris from the shrine, facing south. Photo D.A. (DH 95:609).



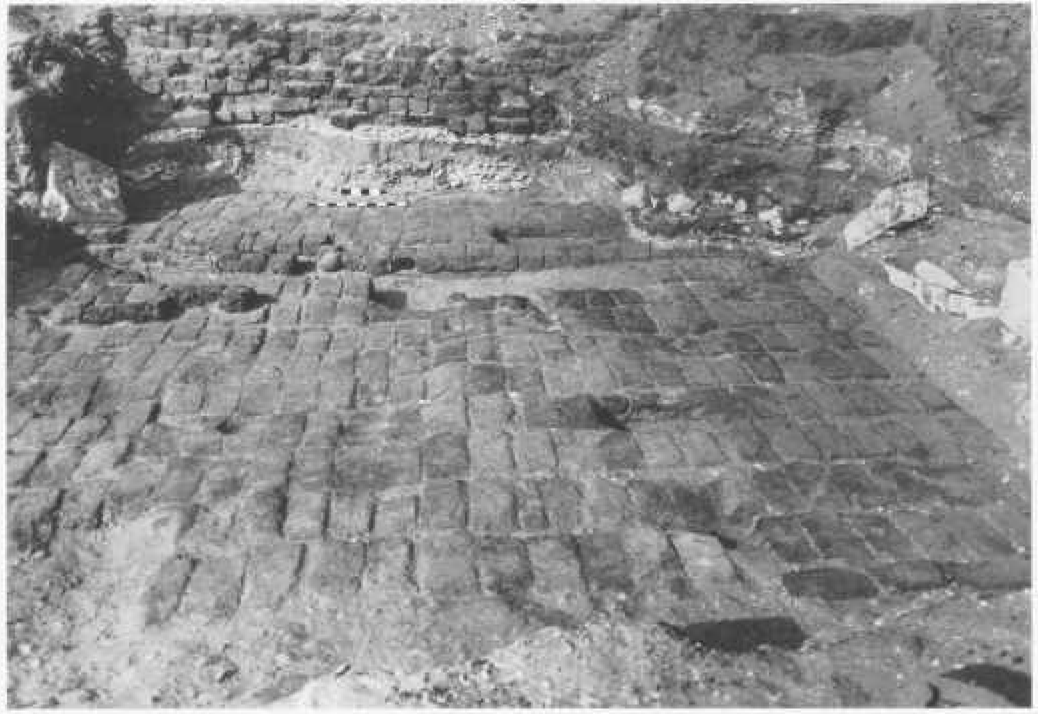
Pl. 46d. Pyramid 7. Southwest corner of the cavity that contained the now-destroyed shrine of the south tomb. Photo D.A. (DH 95:612).



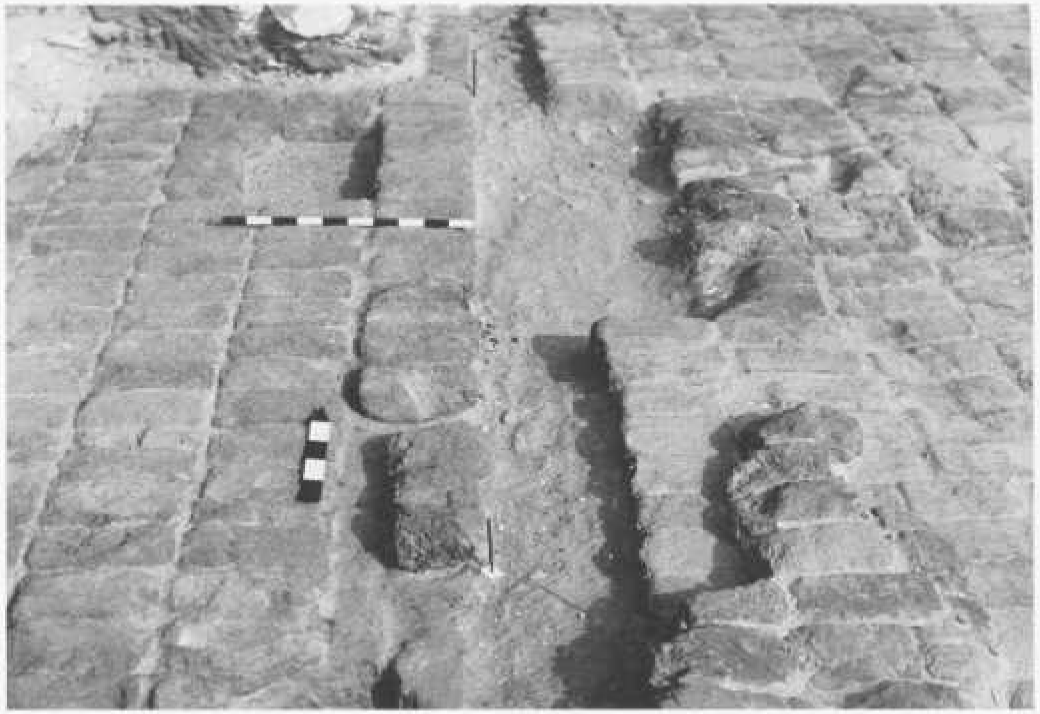
Pl. 47. *A)* West-east section through the brick core, stone foundation, and brick subfoundation at the center of the east side of pyramid 7. Scale 1:50. *B)* Plan of the same area. Scale 1:50. *C)* Front view and top view of a decorated corner block from the east chapel of pyramid 4. Scale 1:10. Drawings D.A.



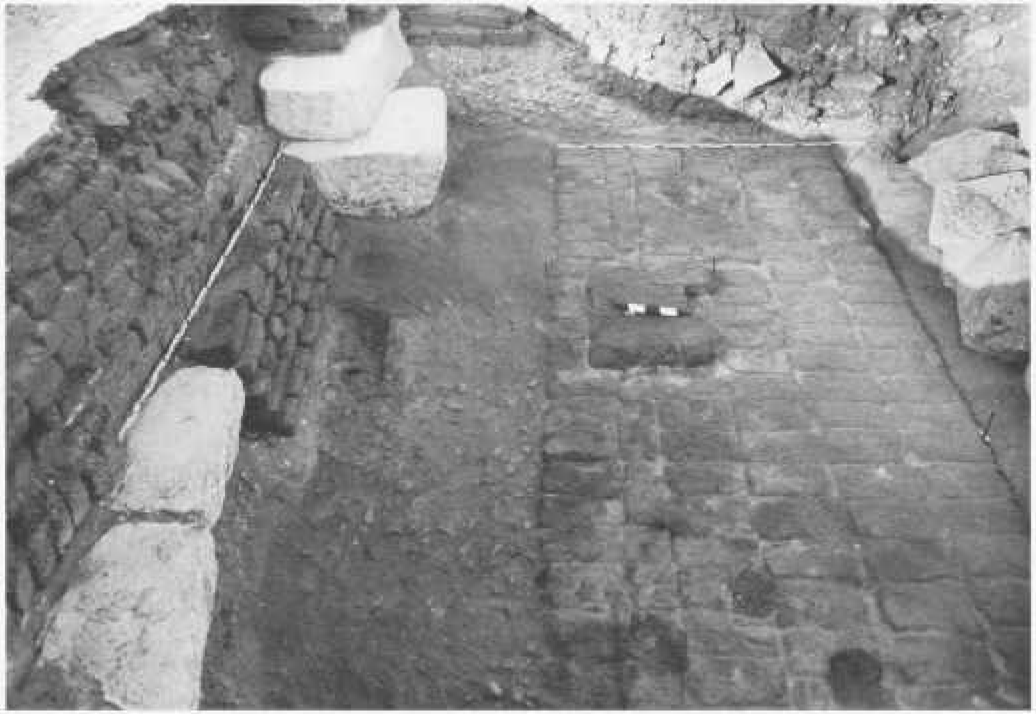
Pl. 48. Upper: East-west section through the brick core, foundation, and subfoundation on the west side of pyramid 7. Lower: South-north section through the brick core, foundation, and subfoundation at the center of the north side of pyramid 8 (Weret I). Scale 1:50. Drawings D.A.



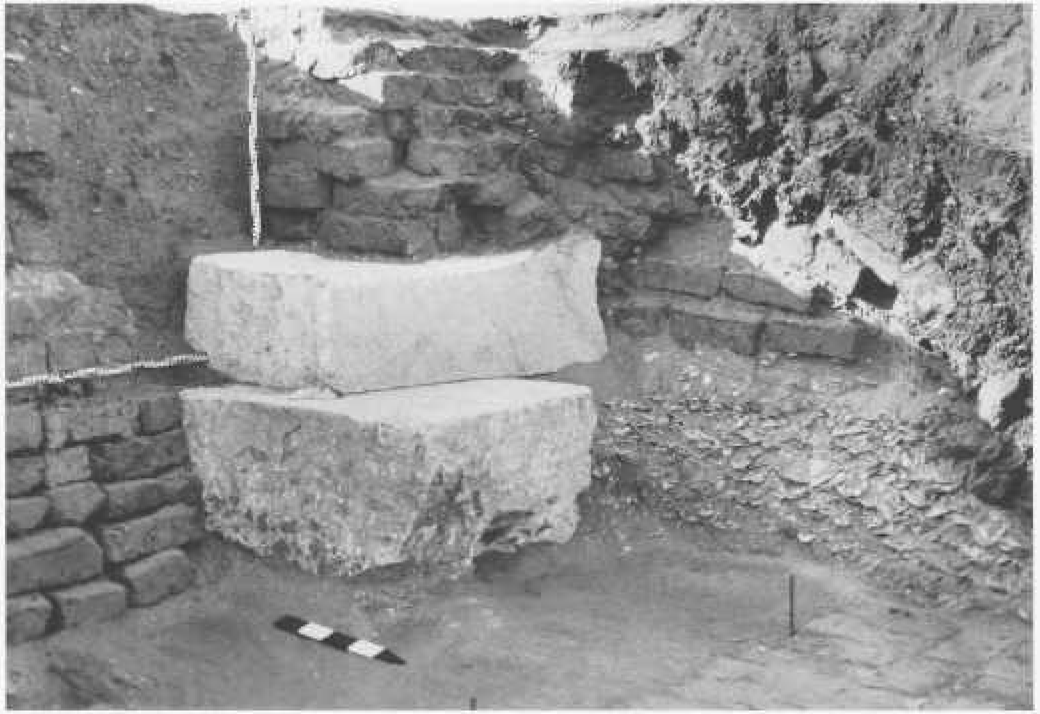
Pl. 49a. Pyramid 8 (Weret I). Subfoundation of the east chapel, facing west. Photo A.K. (DH 97:63/5).



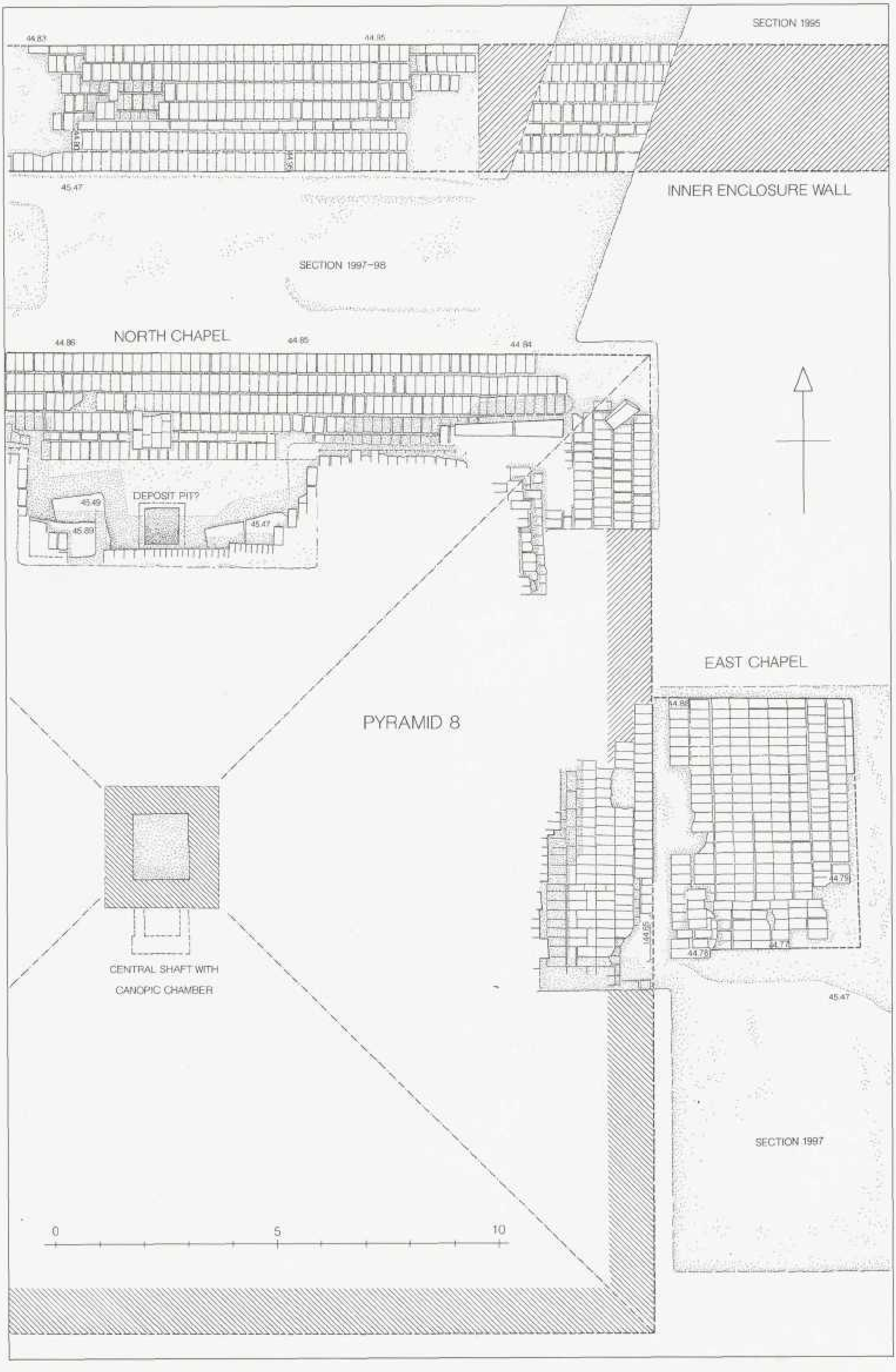
Pl. 49b. Pyramid 8 (Weret I). Subfoundation of the east chapel, facing north. Photo A.K. (DH 97:63/9).



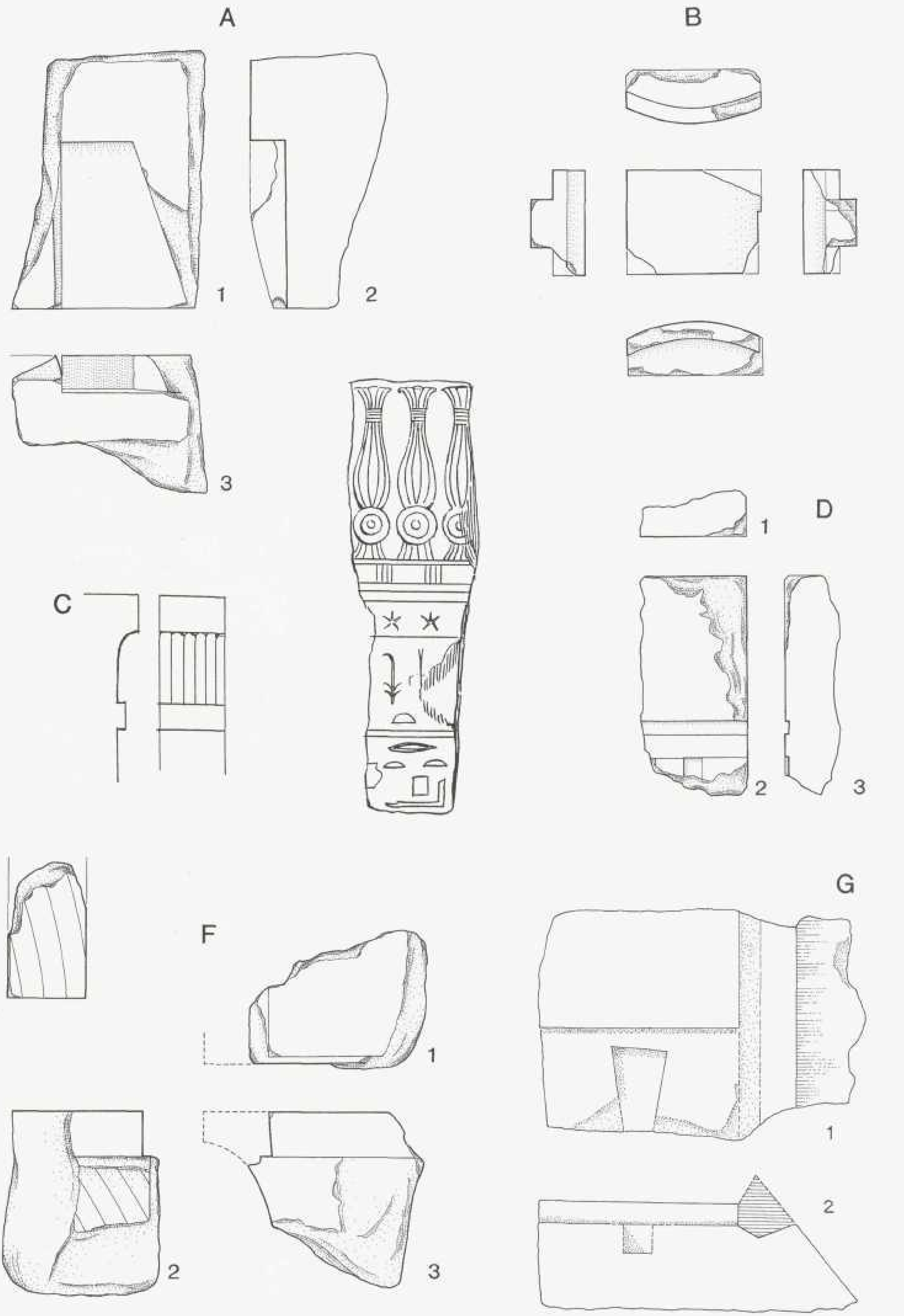
Pl. 49c. Pyramid 8 (Weret I). Foundation blocks in the niche of the north chapel, facing west. Subfoundation of the pyramid casing to the right. Photo A.K. (DH 97:132/16).



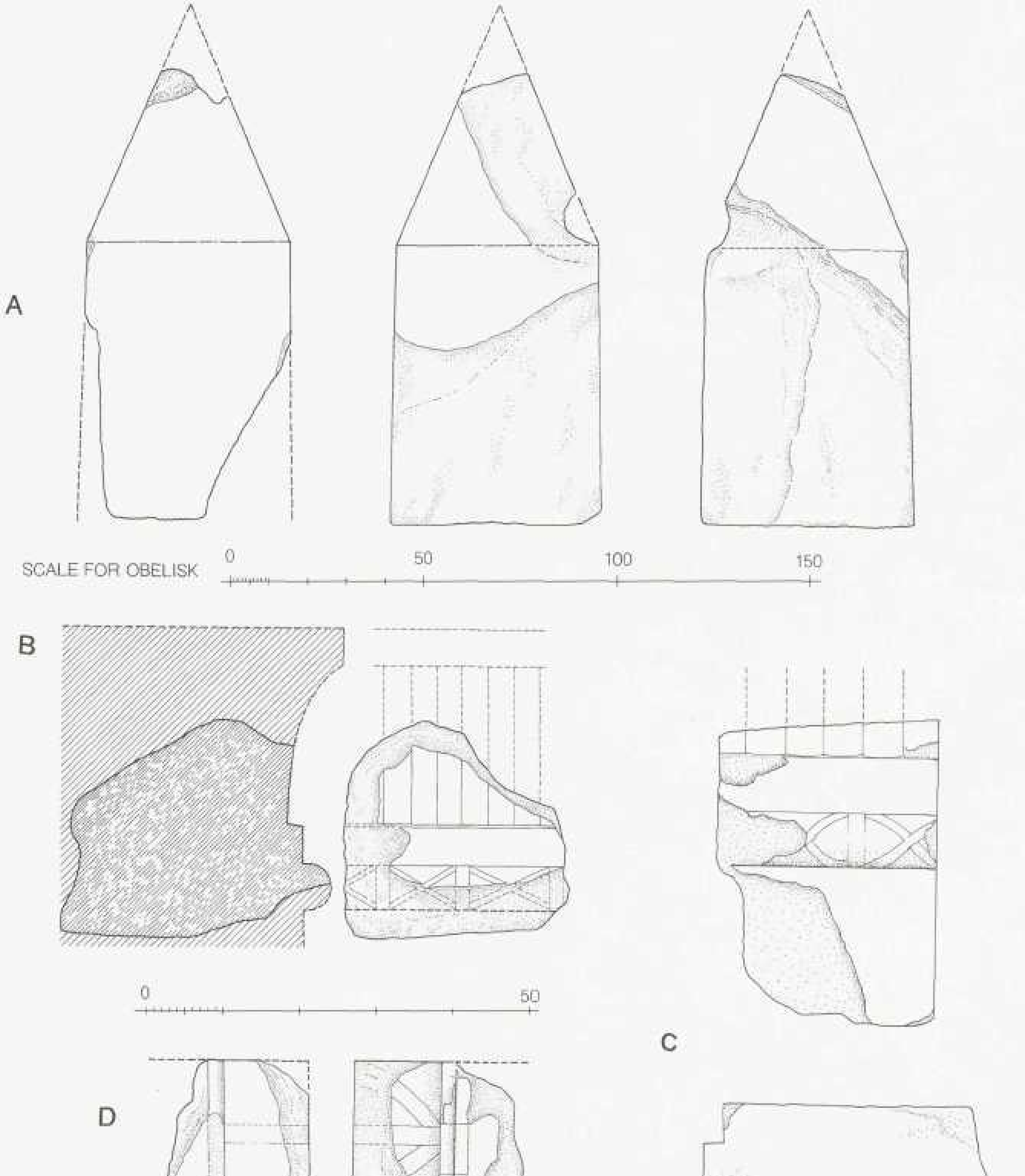
Pl. 49d. Pyramid 8 (Weret I). Foundation blocks in the niche of the north chapel, facing southwest. Subfoundation of the pyramid casing in the lower right corner. Photo A.K. (DH 97:132/26).



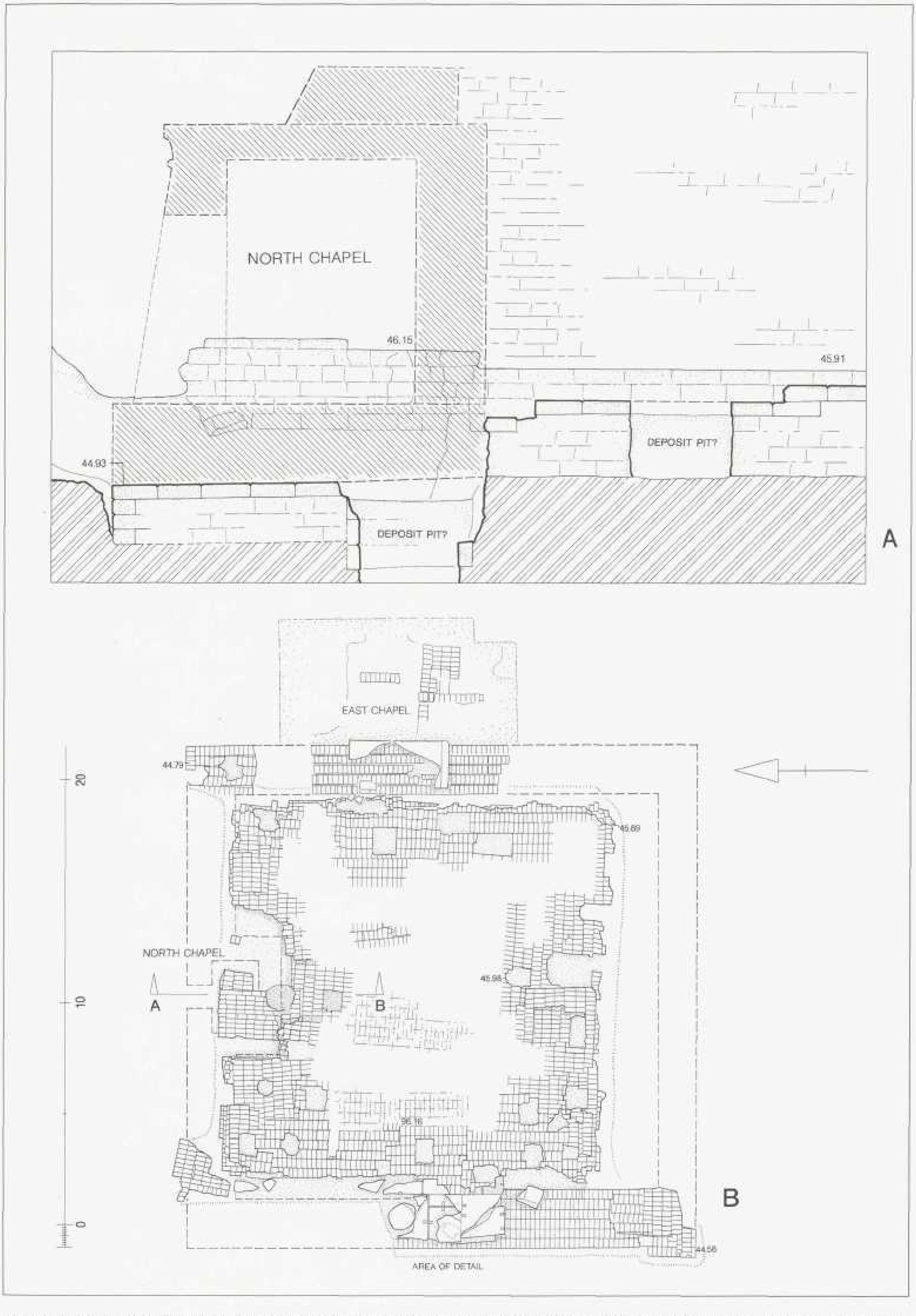
Pl. 50. Pyramid 8 (Weret I). Plan of the area with the inner enclosure wall. Scale 1:100. Drawing D.A.



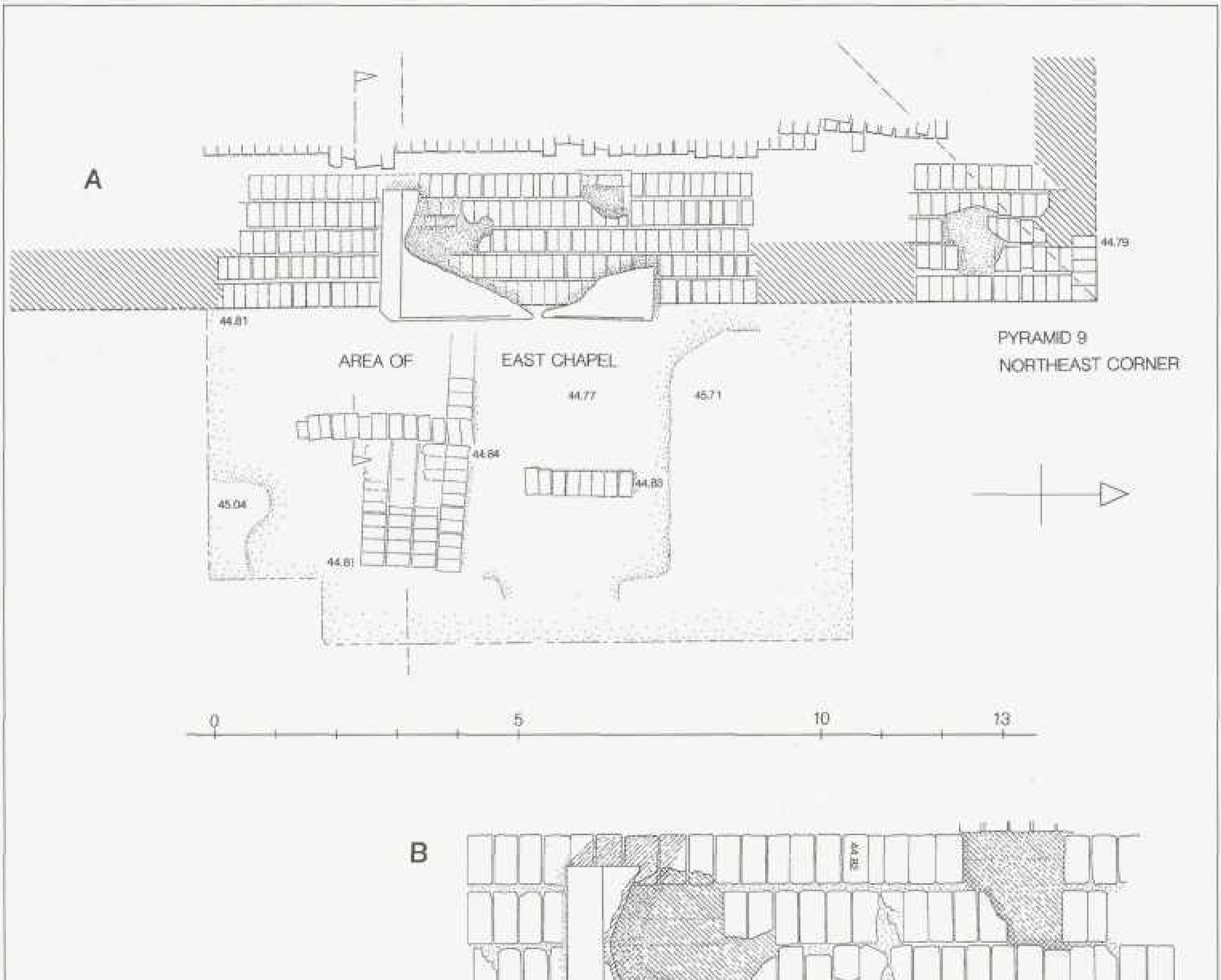
Pl. 51. *A)* Unexplained block found northeast of pyramid 9, top view [1] and side views [2–3]. *B)* Fillet from the area of pyramid 9. *C)* Block found by Perring, probably from east chapel of pyramid 2. No scale. See p. 61. *D)* Granite false door(?) fragment found at the northeast corner of pyramid 8, top view [1], front view [2], and side view [3]. *E)* Cavetto cornice fragment found at the northeast corner of pyramid 8. *F)* Cavetto cornice fragment found at the northeast corner of pyramid 8, top view [1], front view [2], and side view [3]. *G)* Top view [1] and side view [2] of casing block found on the north side of pyramid 8 with patch holes, cramp sockets, and a bed for the upper block. Scale 1:10. Drawings B.G. and D.A.



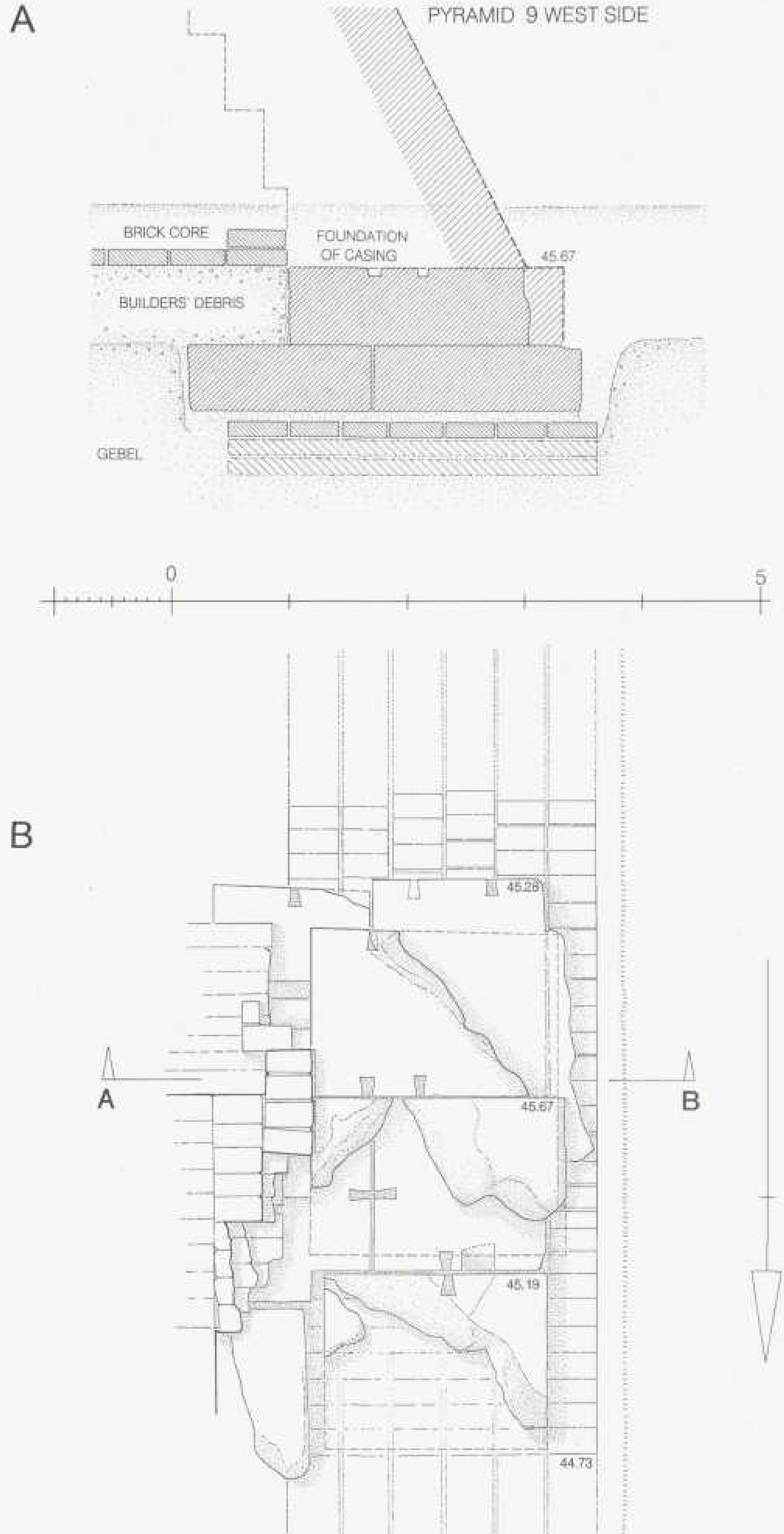
Pl. 52. *A)* Three elevations of an obelisk from the east chapel of pyramid 8. *B)* Cavetto cornice from the east chapel of pyramid 8. *C)* Cavetto cornice and torus from the east chapel of pyramid 9. *D)* Triple corner torus, elevations [1–2] and top view [3] from the east chapel of pyramid 8. Scales 1:15 (A), 1:7.5 (B–D). Drawings D.A.



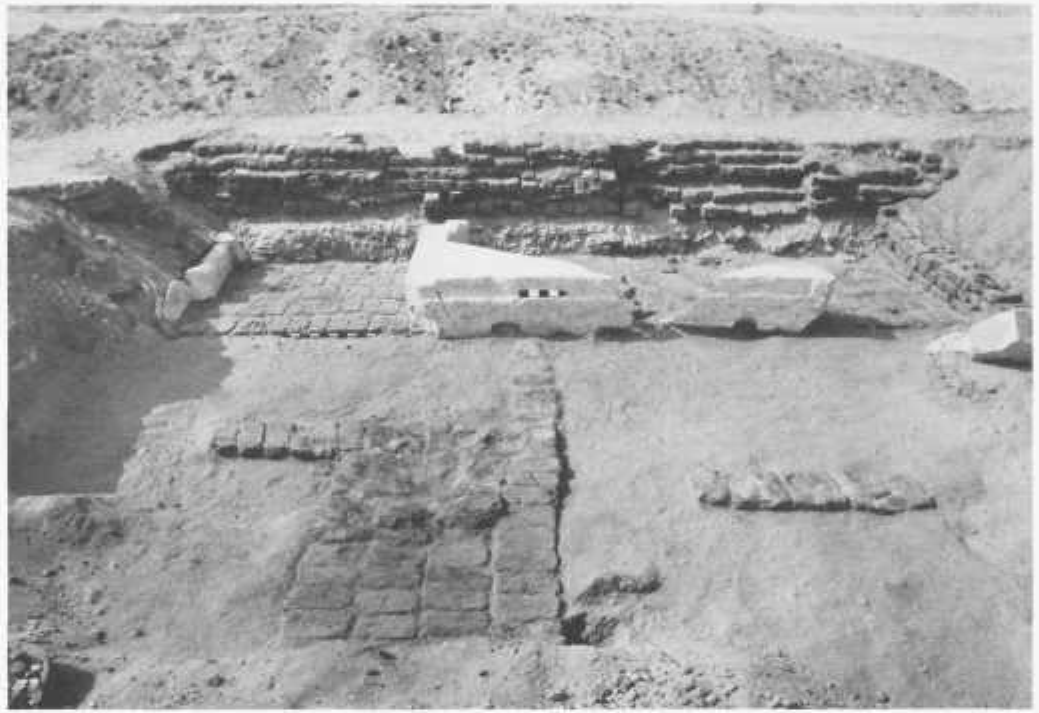
Pl. 53. Pyramid 9 (Weret II). *A)* North-south section with reconstruction of the north chapel. Scale 1:50. *B)* Plan of the brick core of the pyramid. For details see pls. 54–55. Scale 1:200. Drawings R.V. from drawings by D.A.



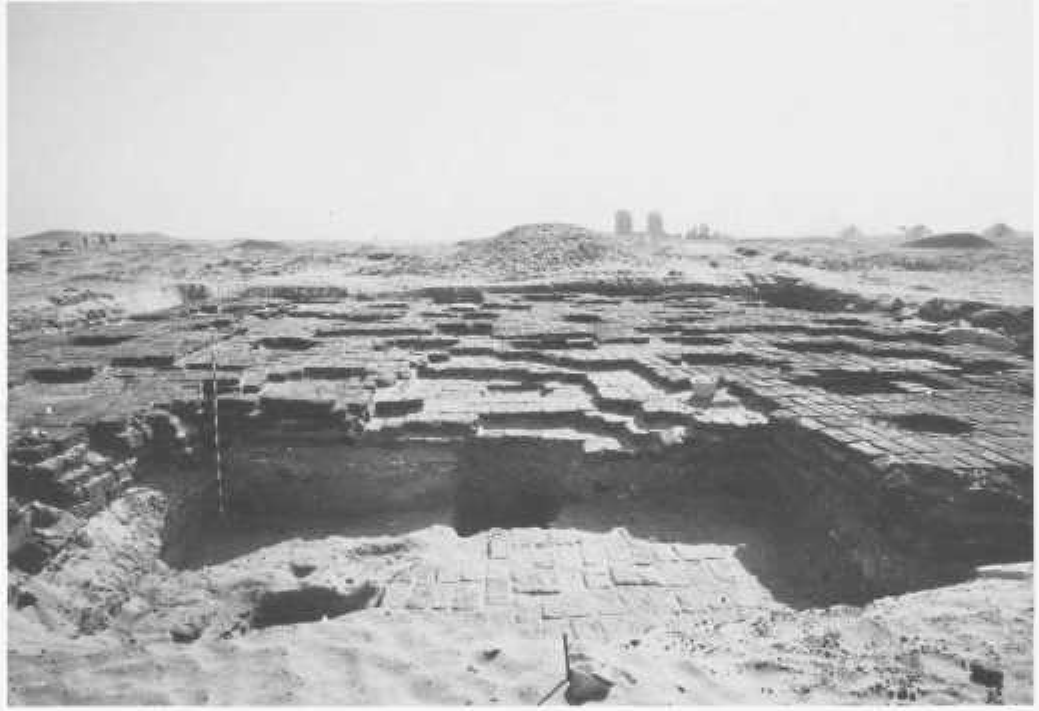
Pl. 54. Pyramid 9 (Weret II). *A)* Plan of the center of the east side of the pyramid. Scale 1:100. *B)* Top view of the foundation block in the center of east side of the pyramid. Scale 1:50. *C)* West-east section through the brick core, foundation block, and subfoundation at the east side of the pyramid. Scale 1:40. Drawings D.A.



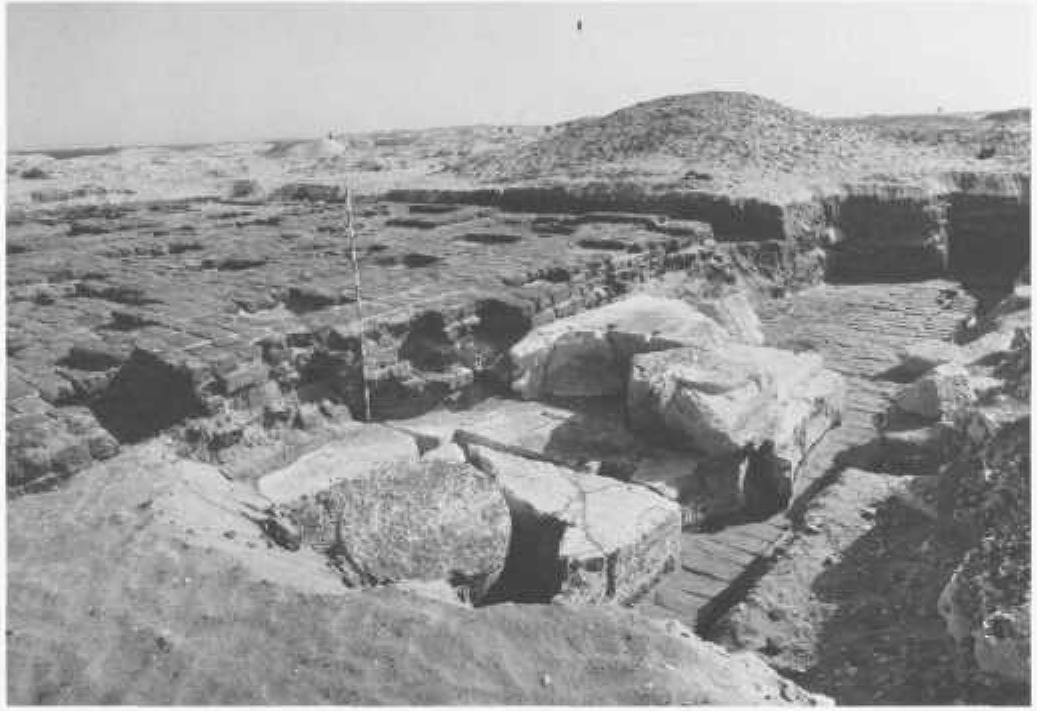
Pl. 55. Pyramid 9 (Weret II). *A)* East-west section through the subfoundation, foundation, core, and reconstructed casing on the west side of the pyramid. *B)* Top view of the subfoundation, foundation, and core on the west side of the pyramid. Scale 1:50. Drawings R.V. from drawings by D.A.



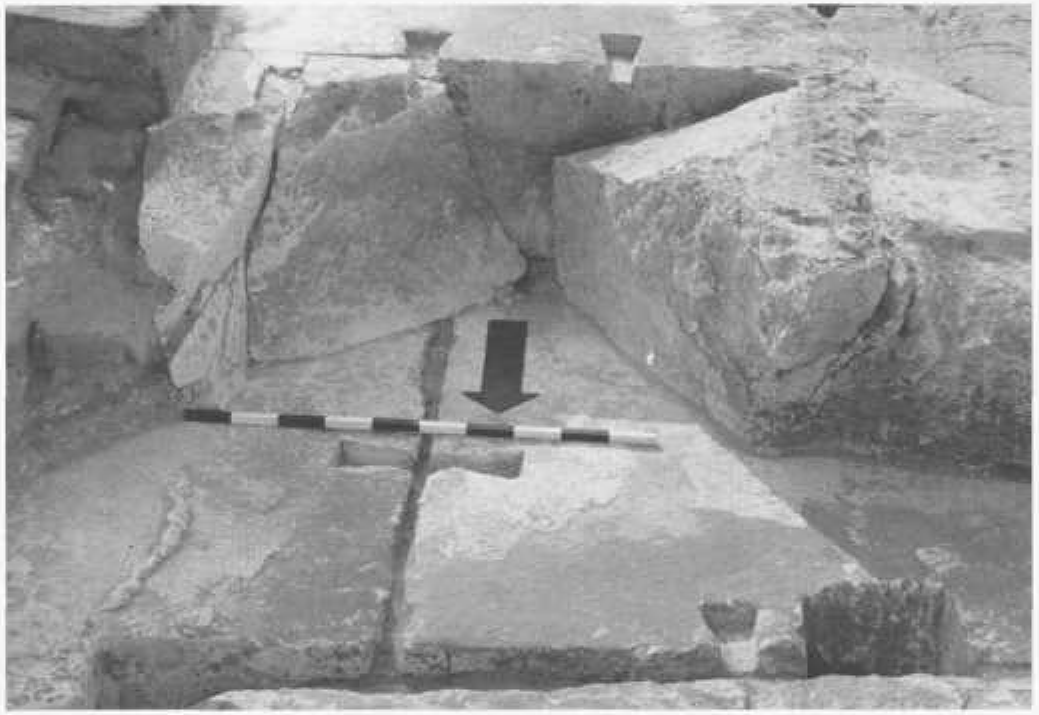
Pl. 56a. Pyramid 9 (Weret II). Remains of the subfoundation of the east chapel, facing west. Photo A.K. (DH 97:89/20A).



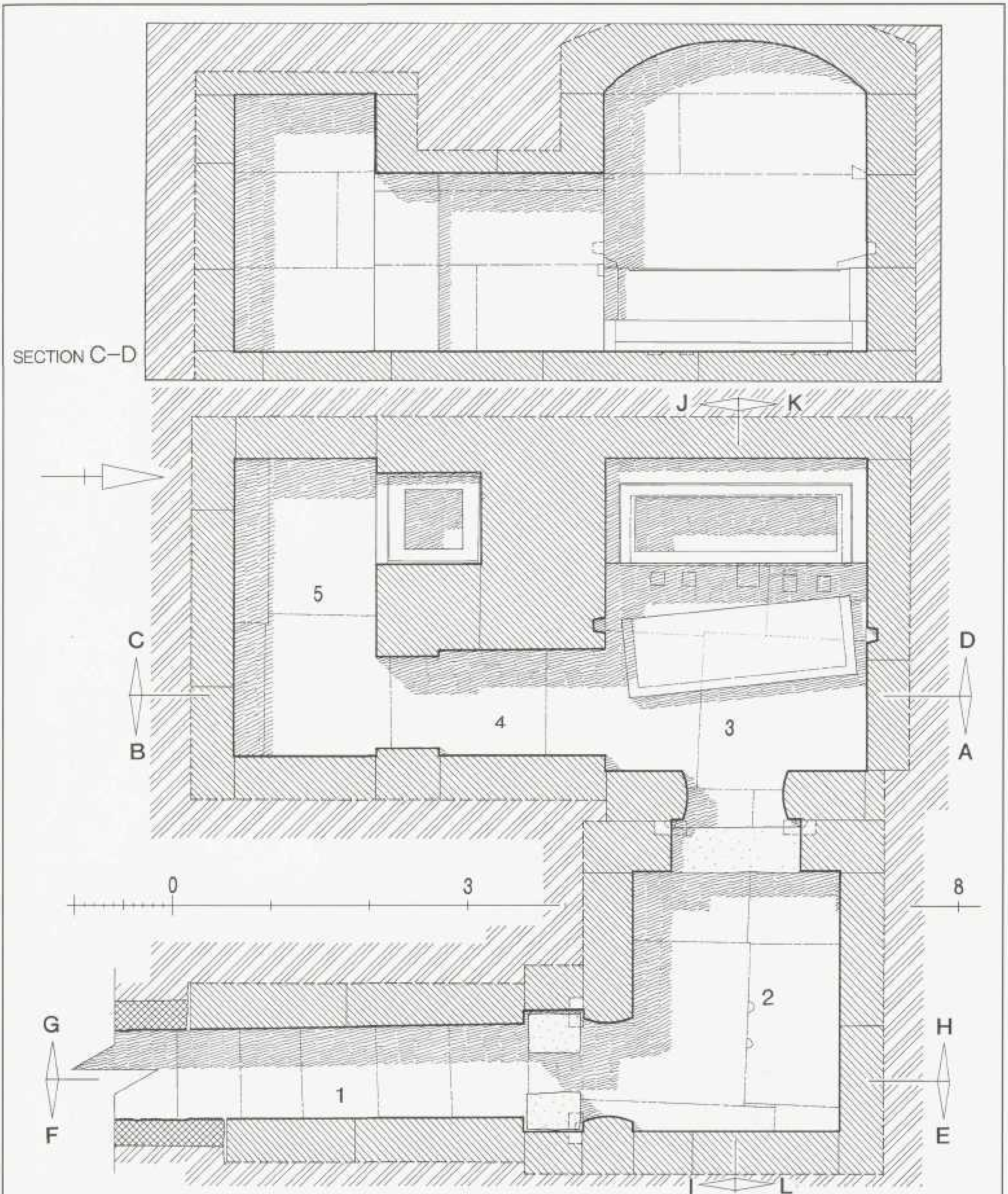
Pl. 56b. The remains of pyramid 9 (Weret II) with the niche for the north chapel in the foreground, facing south. Photo A.O. (DH 92:27).



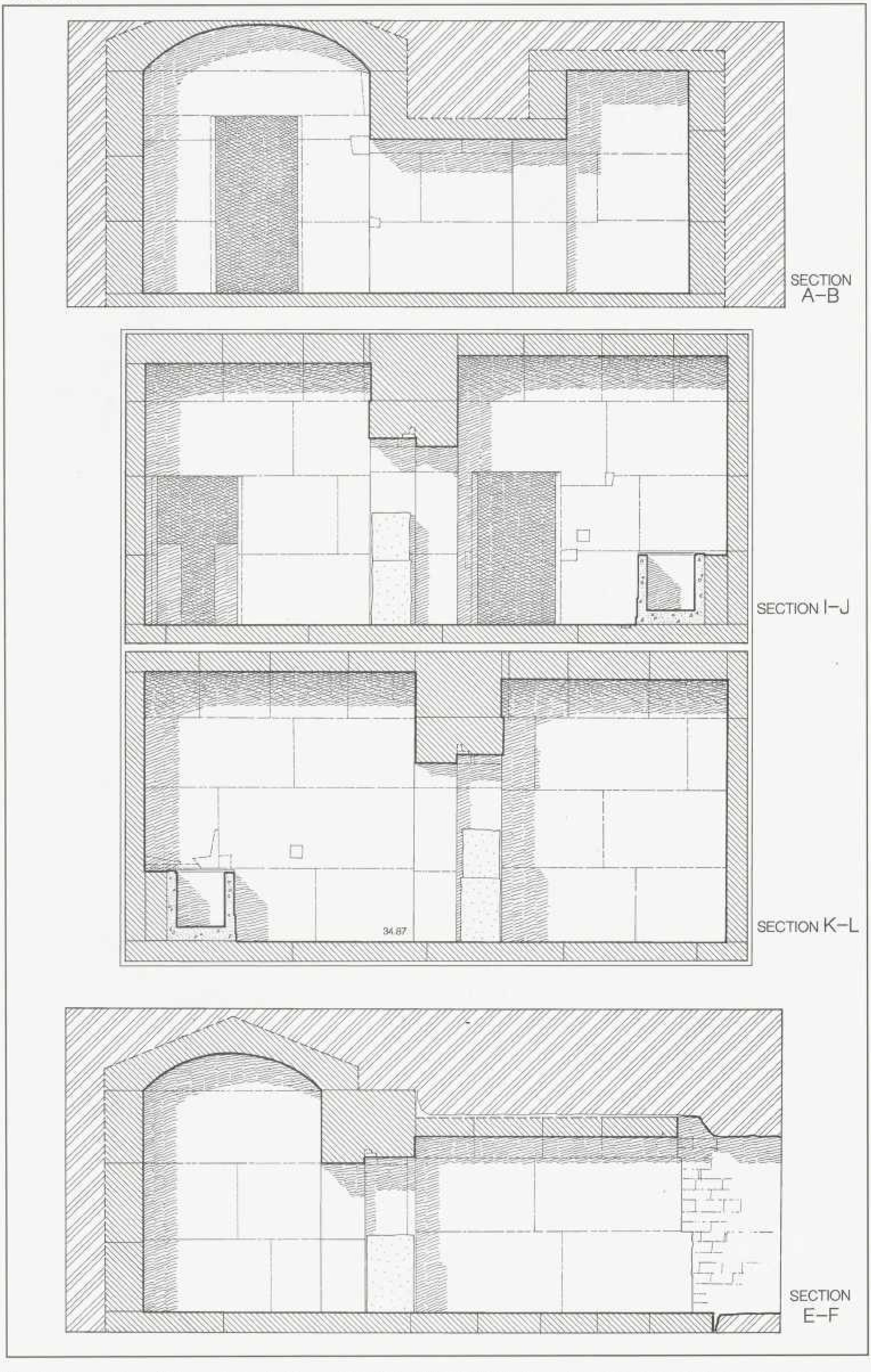
Pl. 56c. Brick core of pyramid 9 (Weret II) with the remains of the foundation of the casing on the west side, facing southeast. Photo A.O. (DH 92:33).



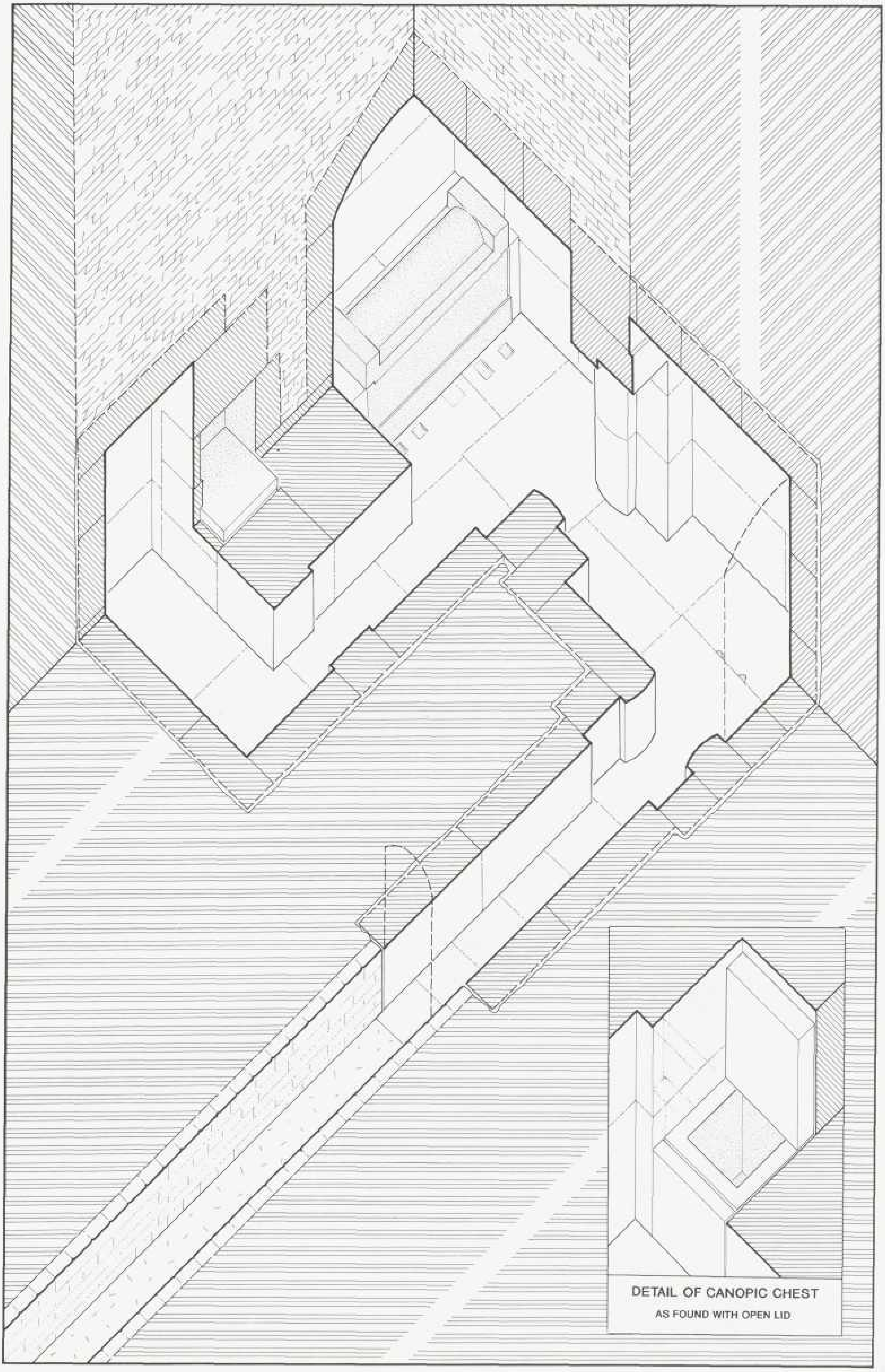
Pl. 56d. Pyramid 9 (Weret II). The juncture of the brick core (left) and foundation blocks of the casing on the west side. The sockets for dovetail cramps are visible. Photo D.A. (DH 92:452).



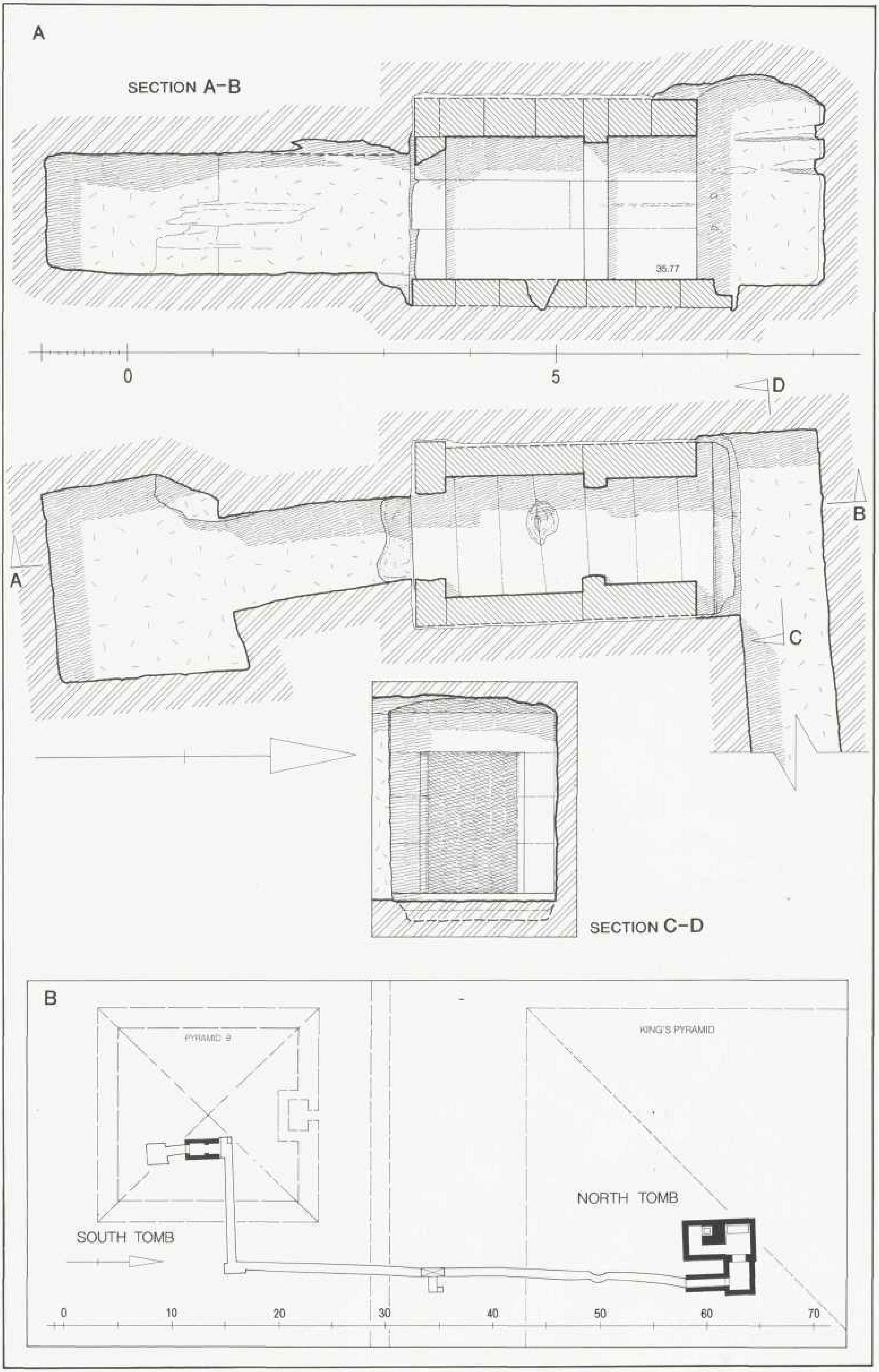
Pl. 57. The north tomb of pyramid 9 plan and sections. Stone-lined entrance corridor [1], antechamber [2], crypt [3], passage [4], and canopic chamber [5]. Scale 1:50. Drawings R.V. from drawings by D.A.



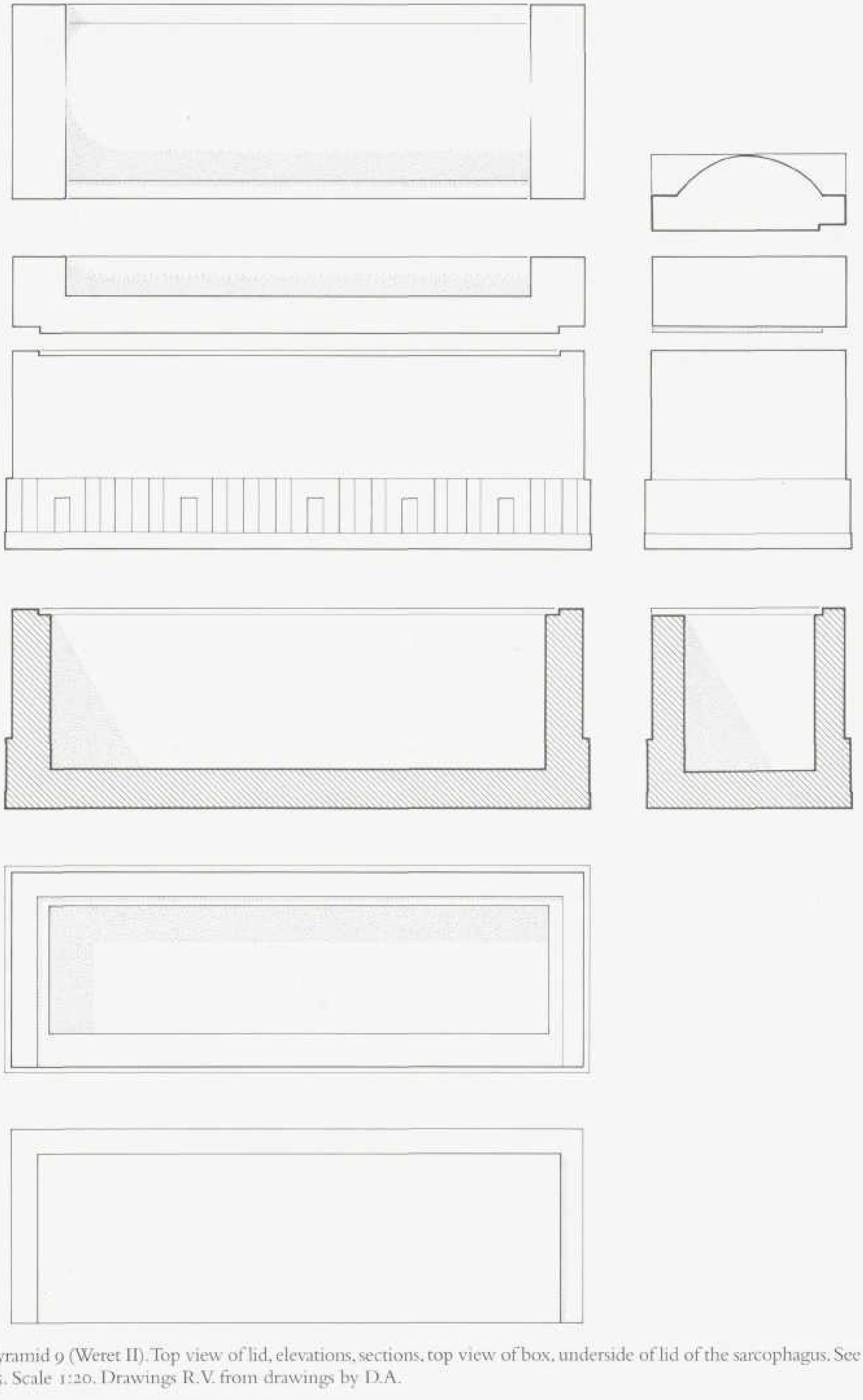
Pl. 58. Four sections of the north tomb of pyramid 9 (Weret II). *A–B)* North-south section through the crypt, passage, and canopic chamber. *I–J)* East-west section through the antechamber and crypt. *K–L)* West-east section through the crypt and antechamber. *E–F)* North-south section through the antechamber and stone-lined entrance corridor. Scale 1:50. Drawings R.V. from drawings by D.A.



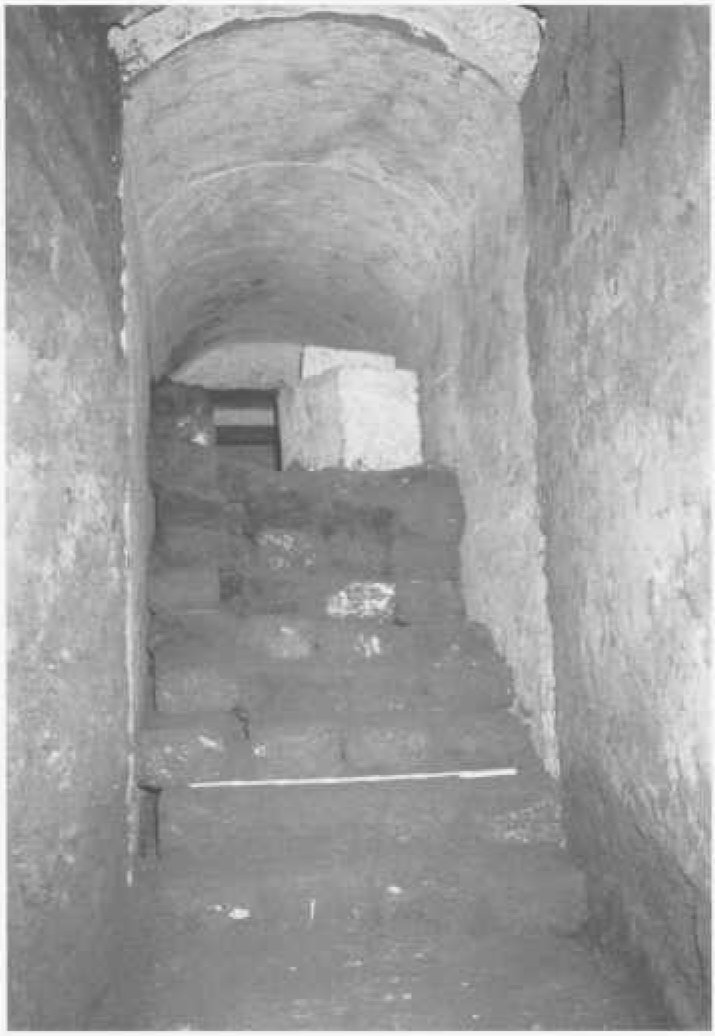
Pl. 59. Axonometric view of the north tomb of pyramid 9 (Weret II). Drawing R.V.



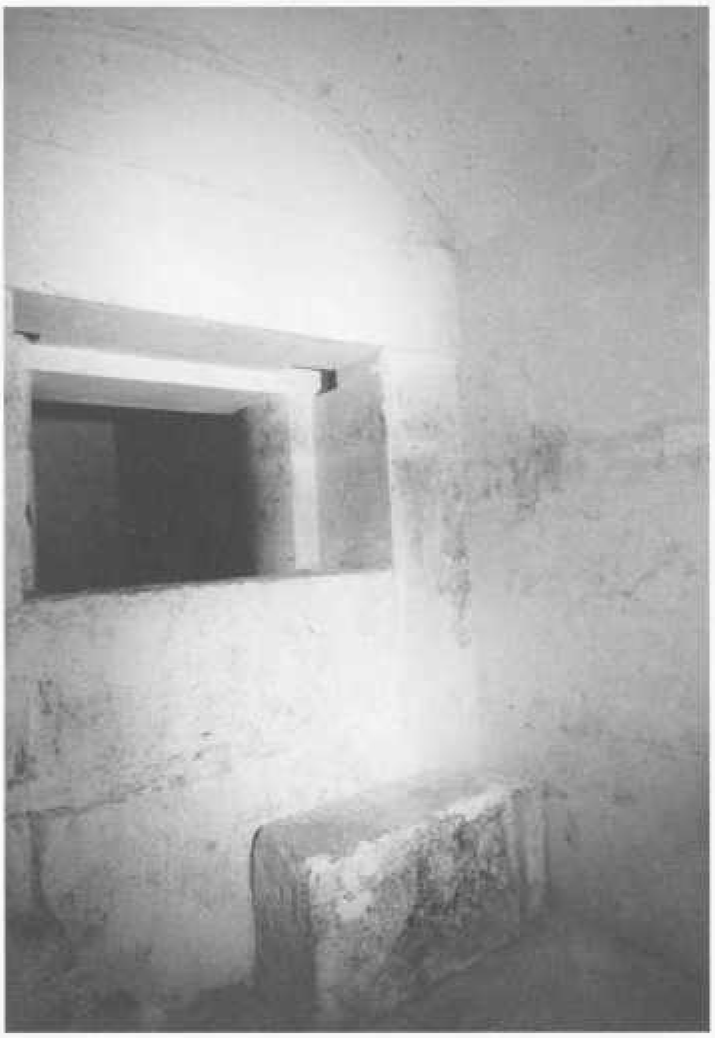
Pl. 60. South tomb of pyramid 9 (Weret II). *A)* Plan and sections. Scale 1:50. *B)* Plan of the tomb system of Weret II. Scale 1:400. Drawings R.V. from drawings by D.A.



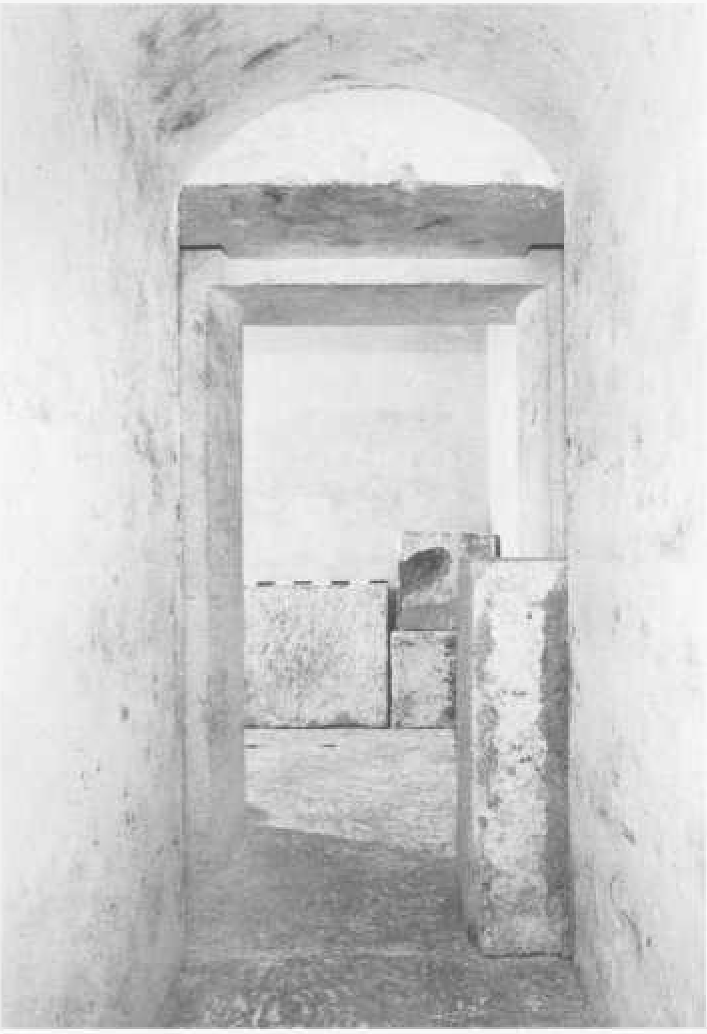
Pl. 61. Pyramid 9 (Weret II). Top view of lid, elevations, sections, top view of box, underside of lid of the sarcophagus. See pls. 20b, 65. Scale 1:20. Drawings R.V. from drawings by D.A.



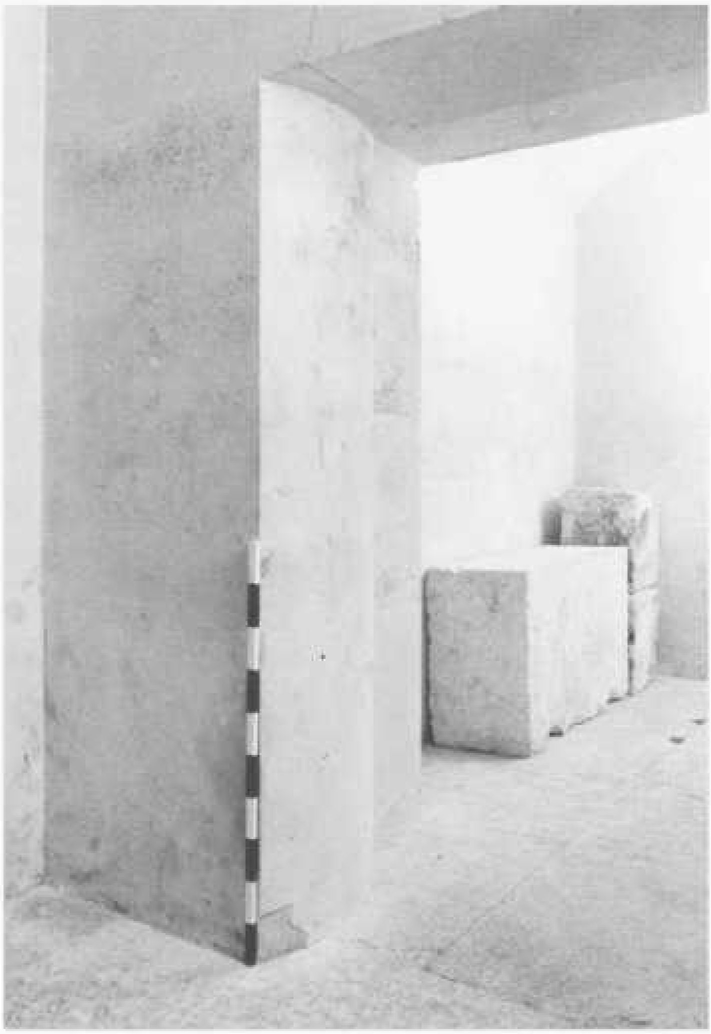
Pl. 62a. North tomb of pyramid 9 (Weret II). Transition from brick to stone-lined corridor with brick blocking still in position, facing north. Photo D.A. (DH 94:566).



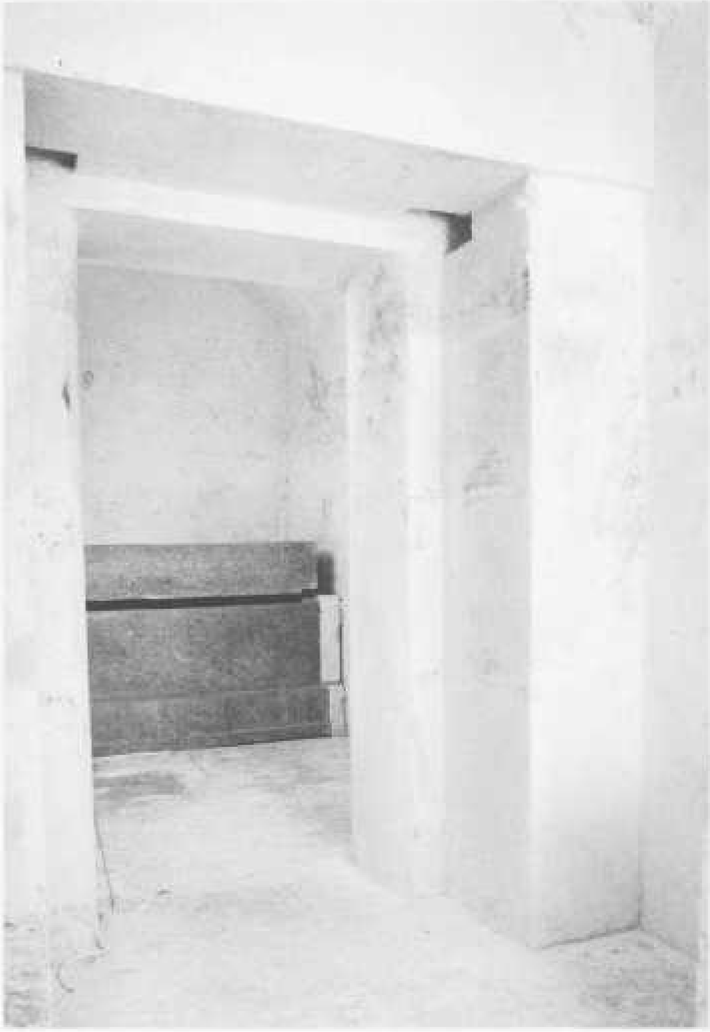
Pl. 62b. North tomb of pyramid 9 (Weret II). Door from antechamber to crypt with blocking still partially in position, facing northwest. Photo A.O. (DH 94:15).



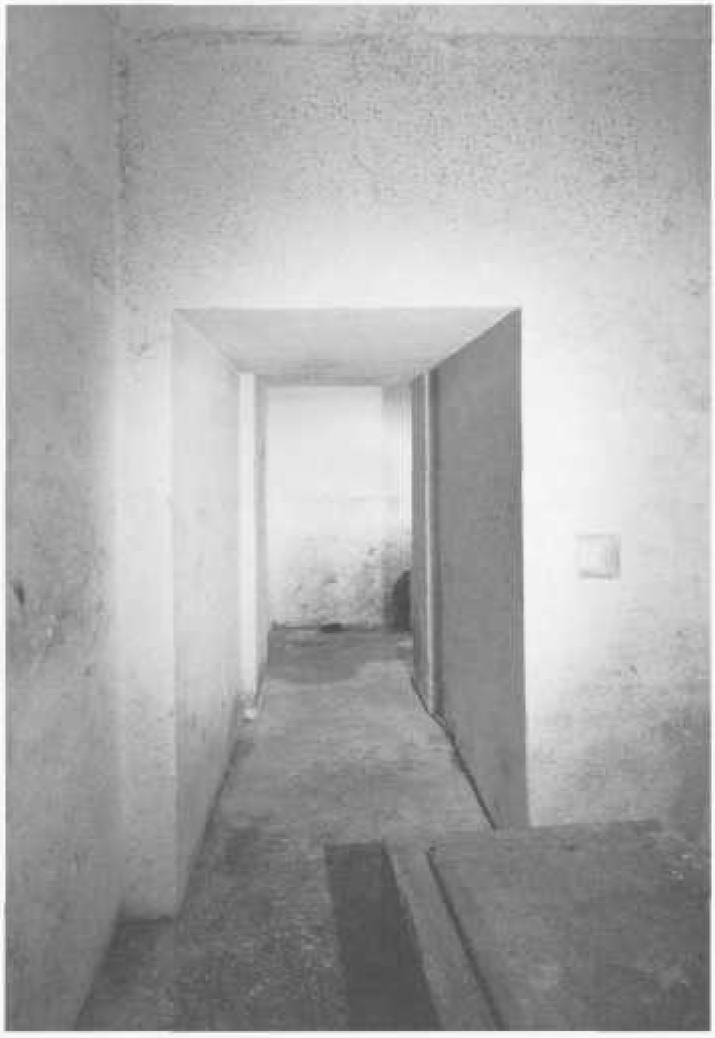
Pl. 62c. North tomb of pyramid 9 (Weret II). View from cleared stone-lined entrance corridor into antechamber, facing north. Photo E.T. and C.M. (DH 96:276).



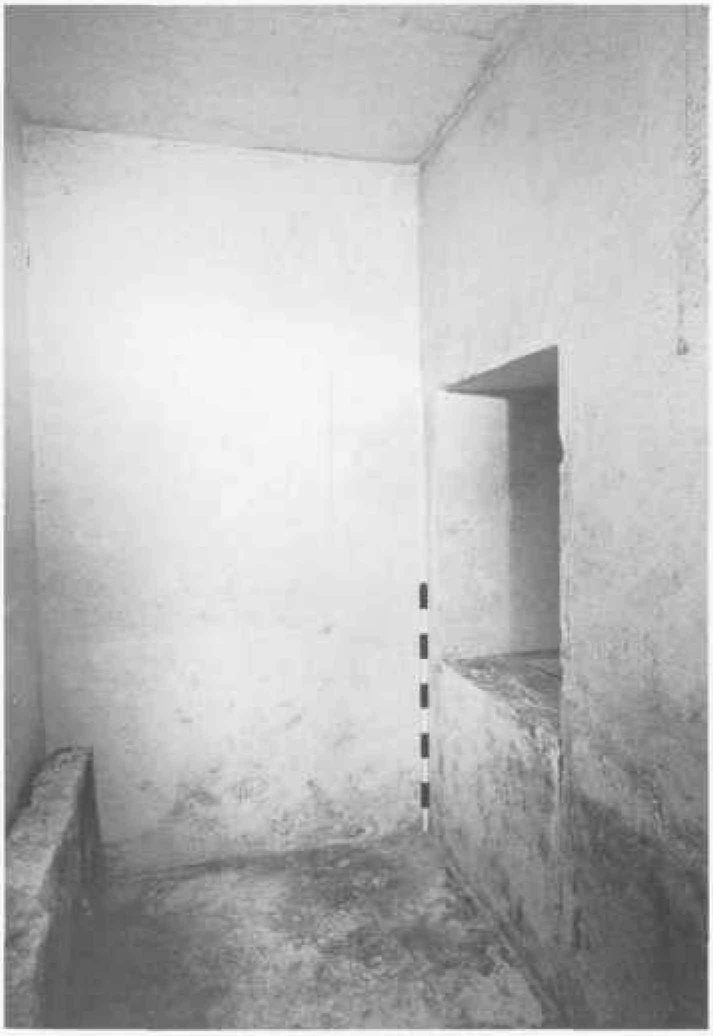
Pl. 62d. North tomb of pyramid 9 (Weret II). View from crypt into antechamber after removal of blocking, facing northeast. Photo C.M. and E.T. (DH 96:313).



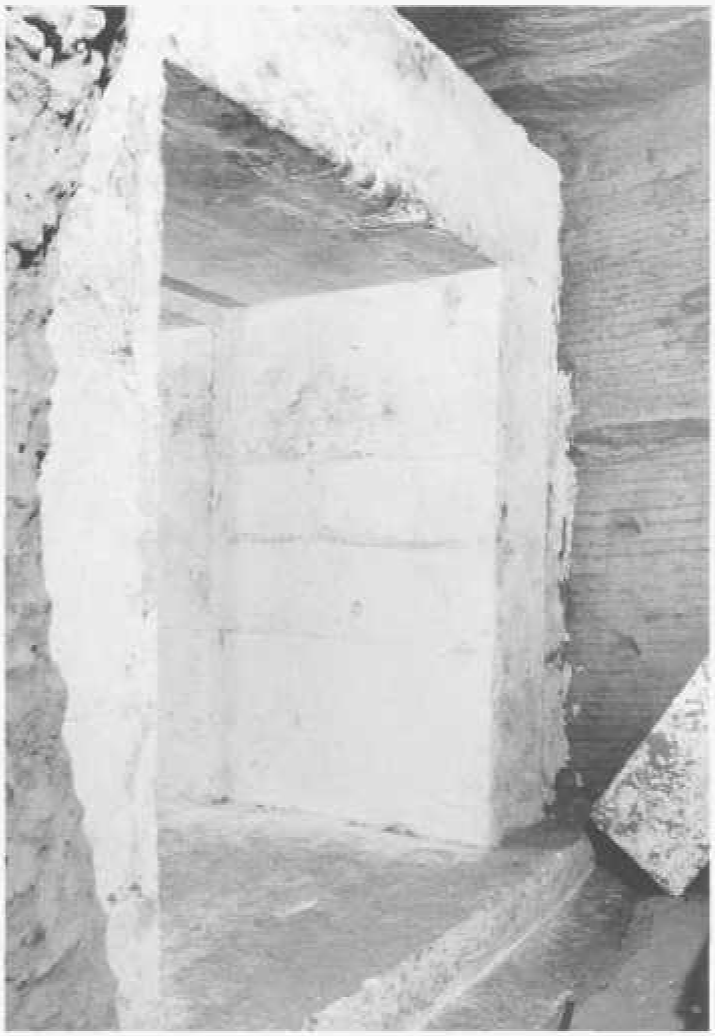
Pl. 63a. North tomb of pyramid 9 (Weret II). Crypt with sarcophagus after clearance, seen from antechamber. Photo A.K. and B.S. (DH 97:31/24).



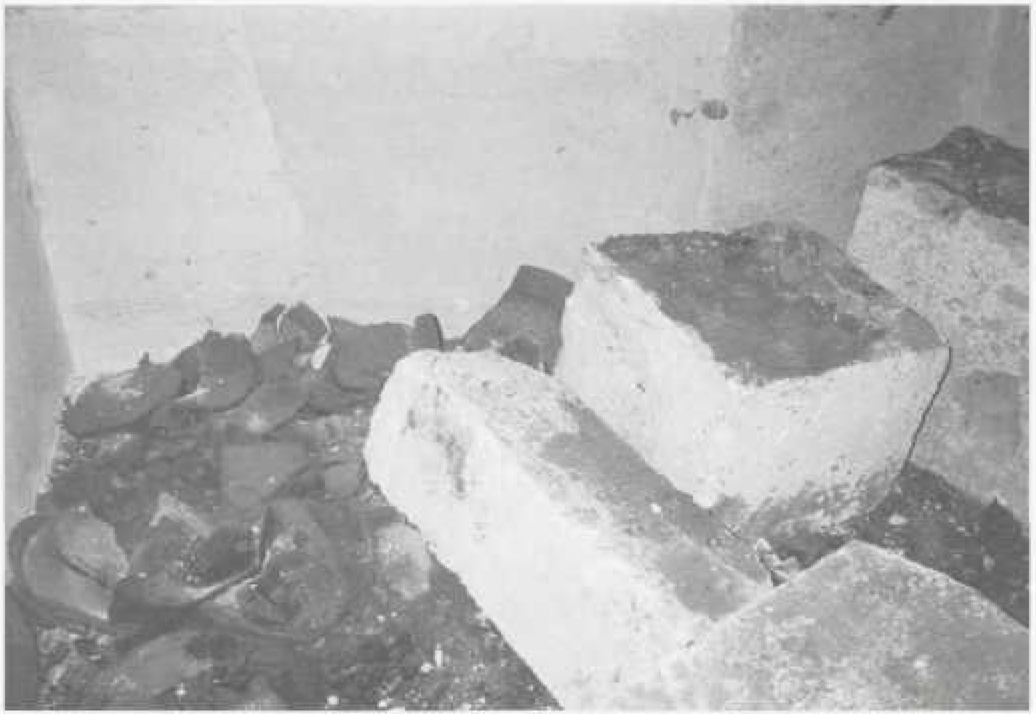
Pl. 63b. North tomb of pyramid 9 (Weret II). Passage between crypt and canopic chamber after clearance, facing south. Photo A.O. (DH 94:13).



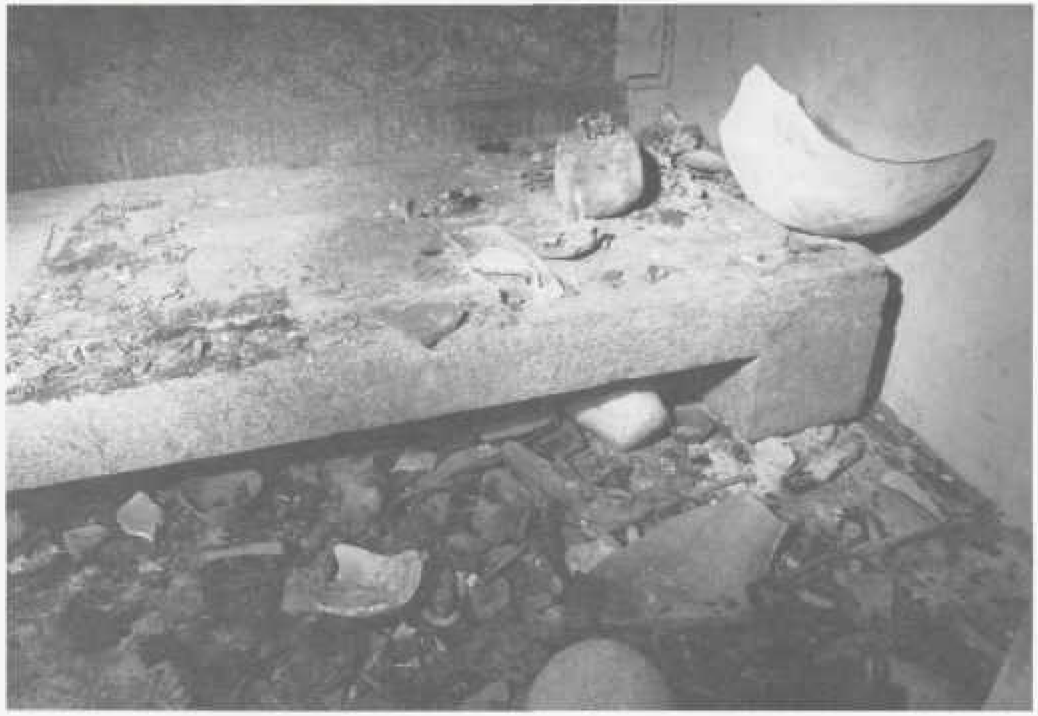
Pl. 63c. North tomb of pyramid 9 (Weret II). Canopic chamber after clearance, facing west. Photo A.O. (DH 94:17).



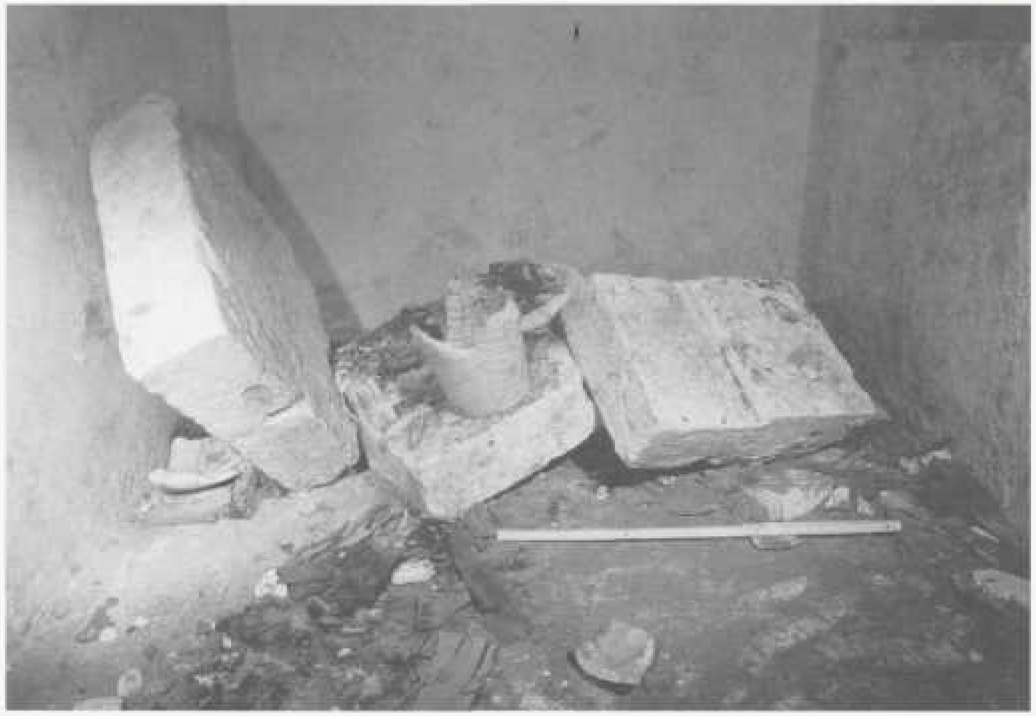
Pl. 63d. Shrine of the south tomb of pyramid 9 (Weret II) after clearance, facing southwest. Photo E.T. and C.M. (DH 96:69/25–31).



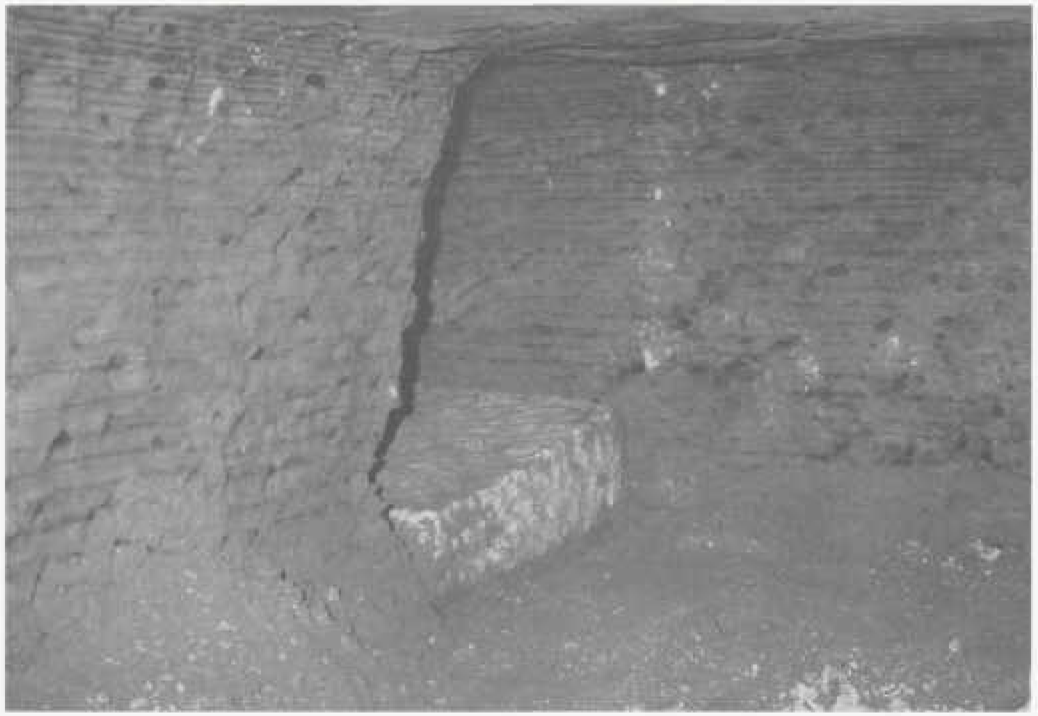
Pl. 64a. North tomb of pyramid 9 (Weret II). Antechamber as found, facing east. Photo D.A. (DH 94:696).



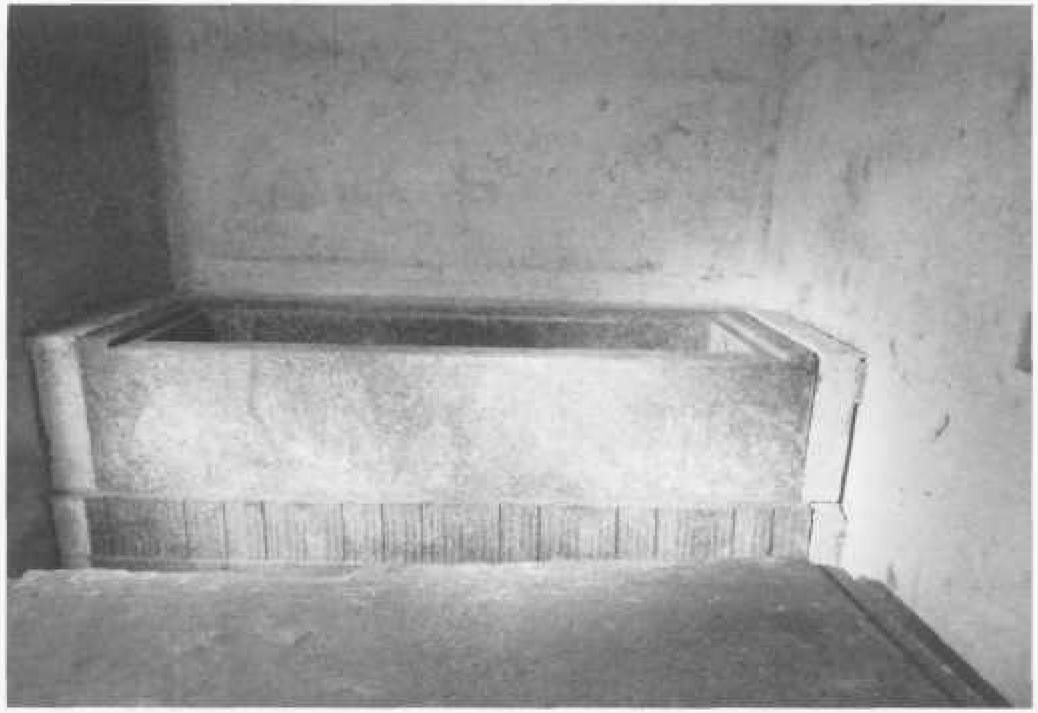
Pl. 64b. North tomb of pyramid 9 (Weret II). Crypt as found, with overturned sarcophagus lid on the floor, facing northwest. The skull of the queen is on the right side of the lid. Photo A.O. (DH 94:522A).



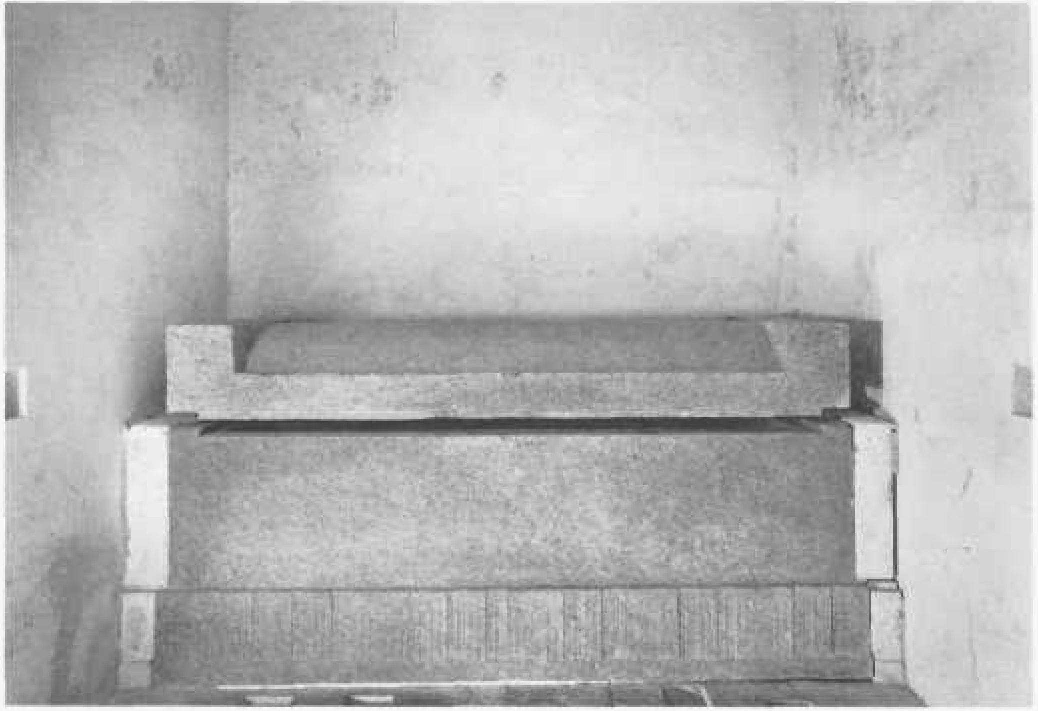
Pl. 64c. North tomb of pyramid 9 (Weret II). Canopic chamber as found with remains of canopic jar, facing west. Photo A.O. (DH 94:532).



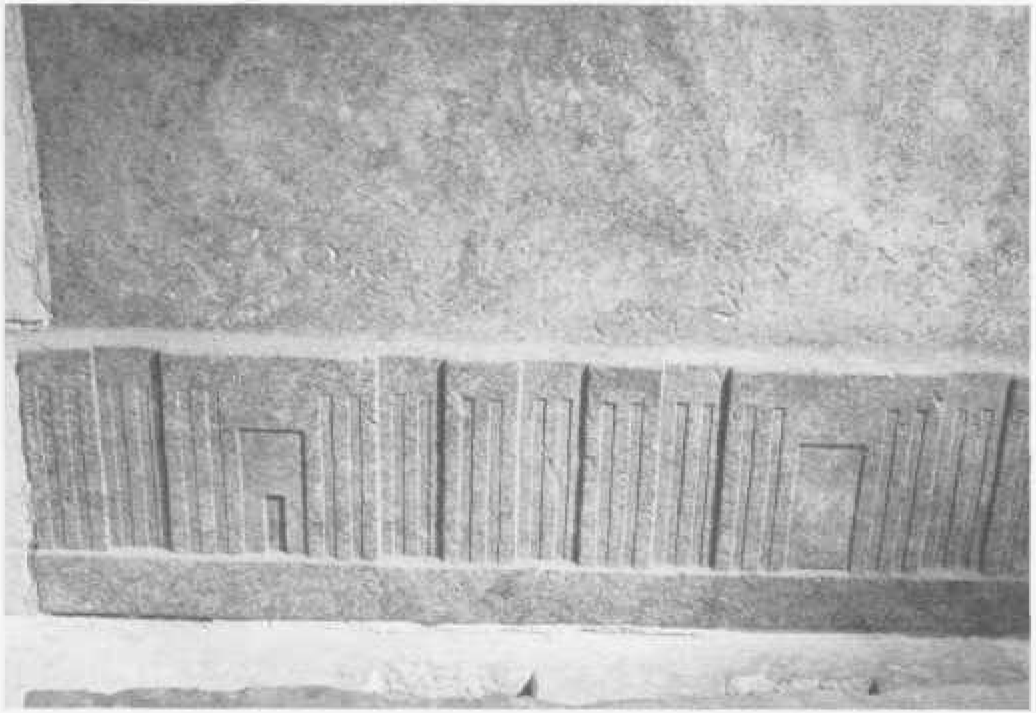
Pl. 64d. Pyramid 9 (Weret II). Niche on the east side of the shaft that contained the jewelry deposit. Brick blocking and block A have been removed. See fig. 26. Photo D.A. (DH 94:667).



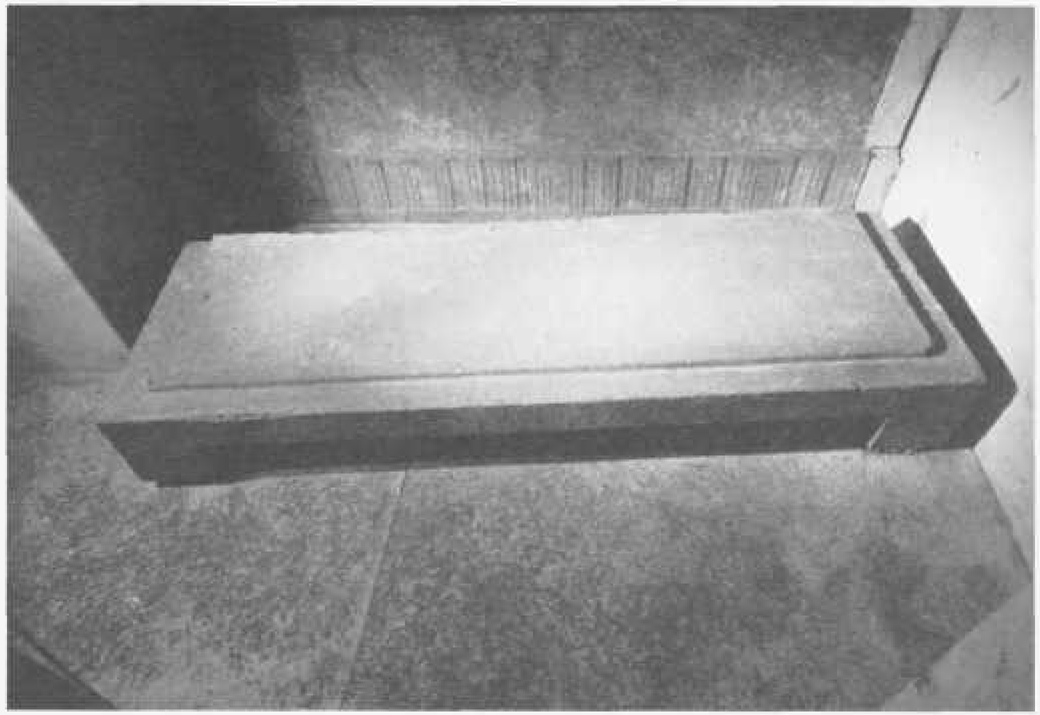
Pl. 65a. North tomb of pyramid 9 (Weret II). Sarcophagus after cleaning. Photo A.O. (DH 94:12).



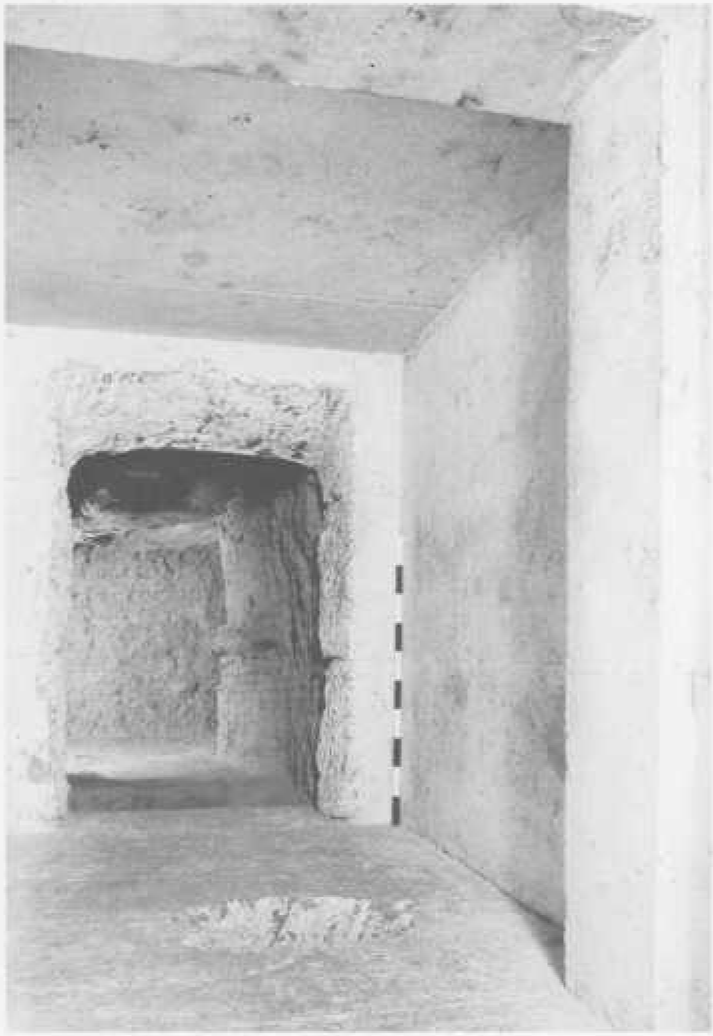
Pl. 65b. North tomb of pyramid 9 (Weret II). Crypt and sarcophagus with repositioned lid. Photo A.K. (DH 98:5/7).



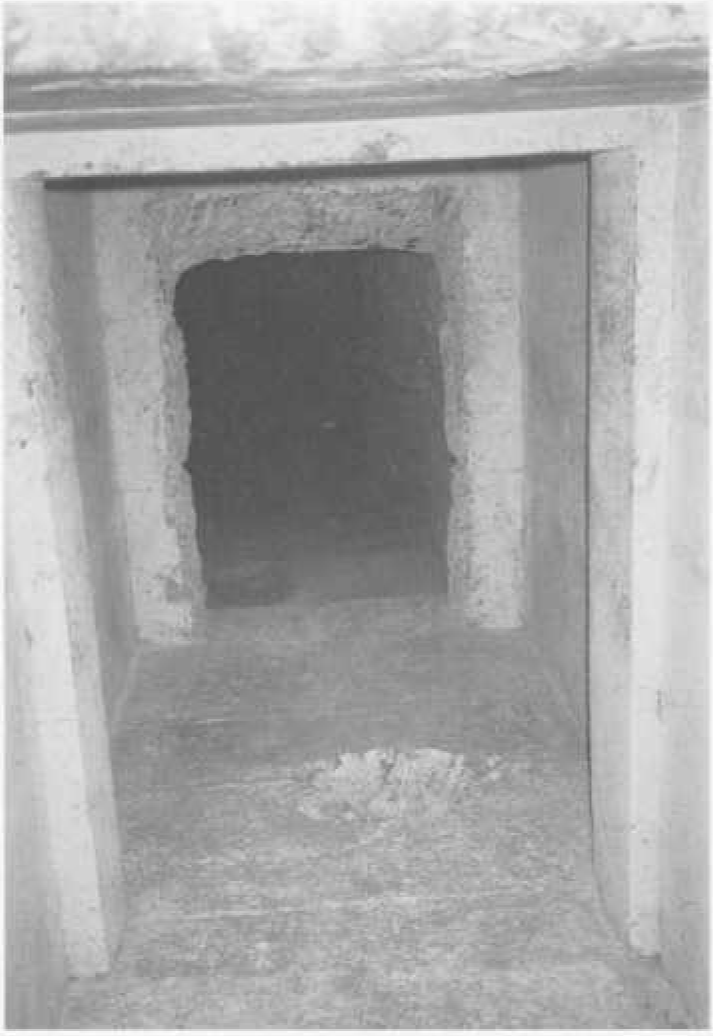
Pl. 65c. North tomb of pyramid 9 (Weret II). Detail of paneled base of sarcophagus. See pl. 20b. Photo A.O. (DH 94:469).



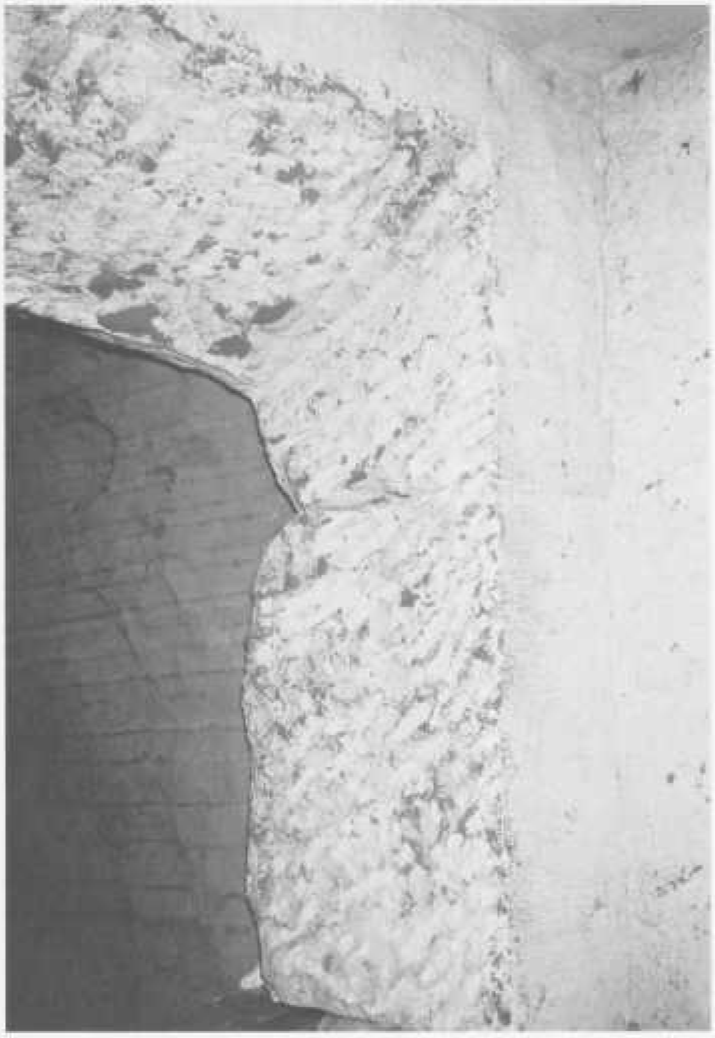
Pl. 65d. North tomb of pyramid 9 (Weret II). Lid of sarcophagus in the position in which it was found, after cleaning. Photo A.O. (DH 94:11).



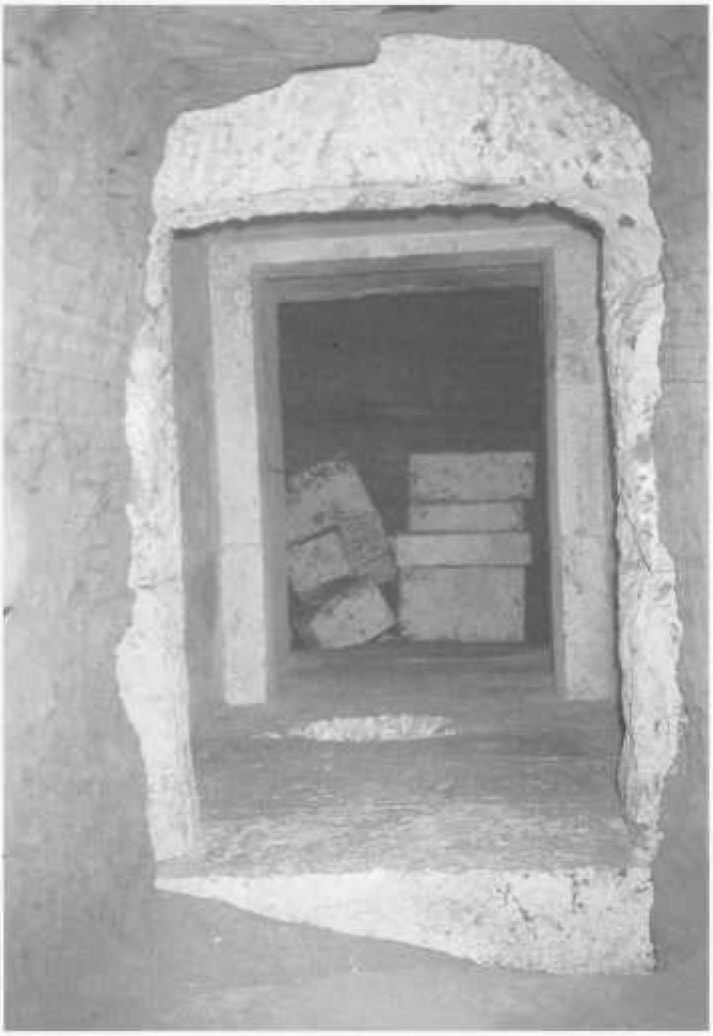
Pl. 66a. South tomb of pyramid 9 (Weret II). View into shrine and rock-cut chamber behind, facing south. Photo A.O. (DH 94:12).



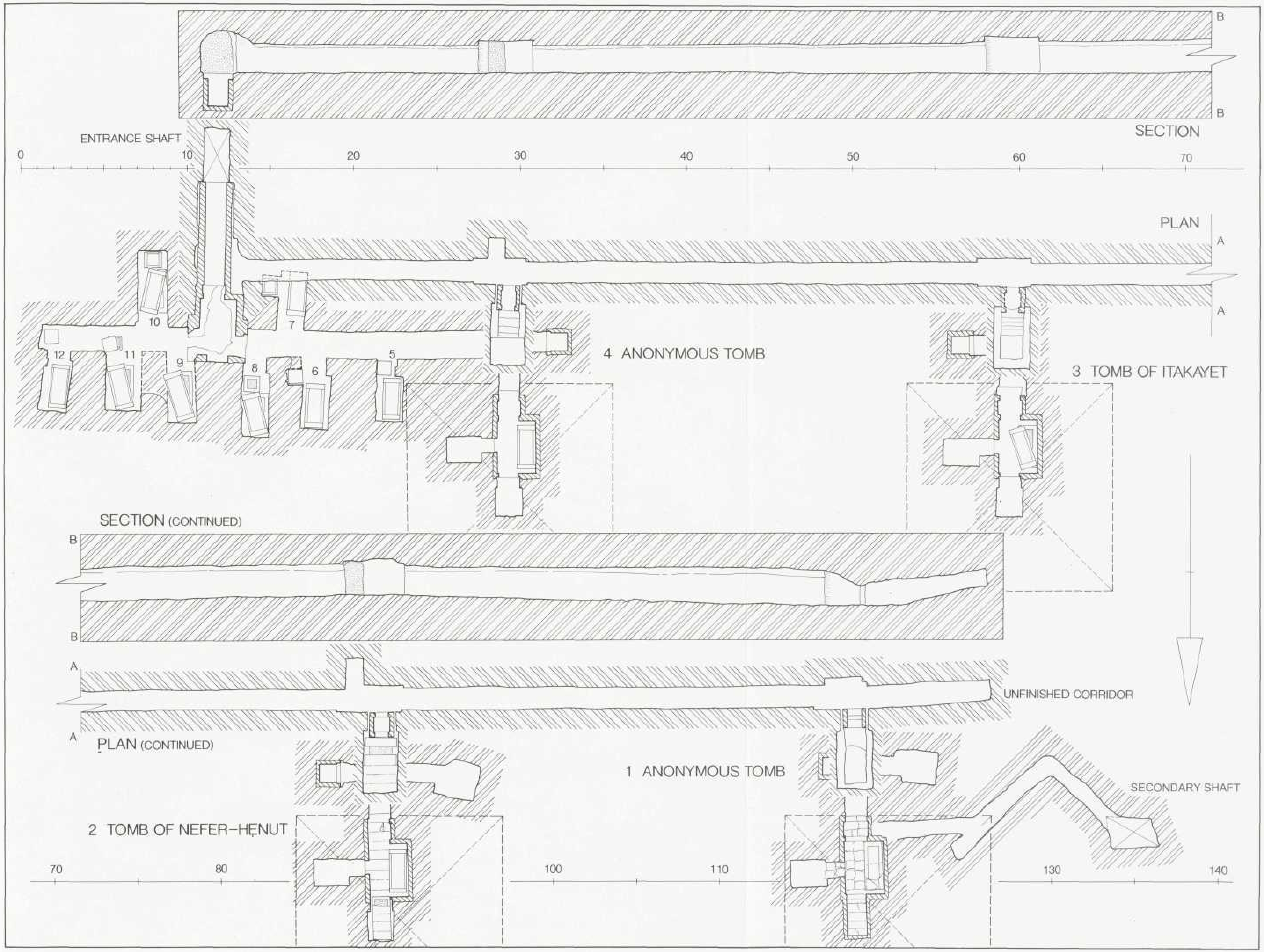
Pl. 66b. South tomb of pyramid 9 (Weret II). Shrine after the removal of the blocking stones, facing south. Photo D.A. (DH 94:722).



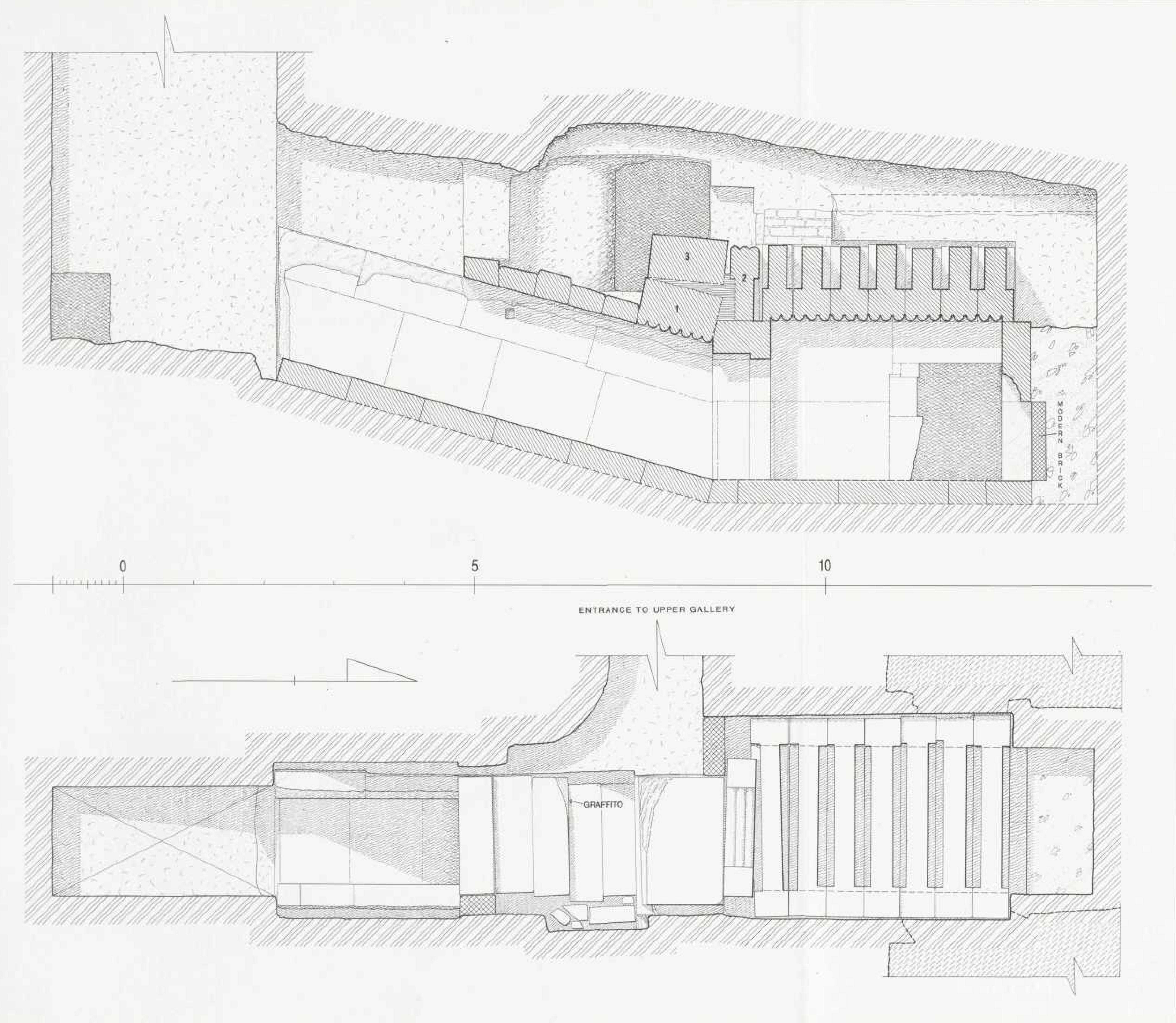
Pl. 66c. South tomb of pyramid 9 (Weret II). Hole cut into the rear wall of the shrine. Photo D.A. (DH 94:721).

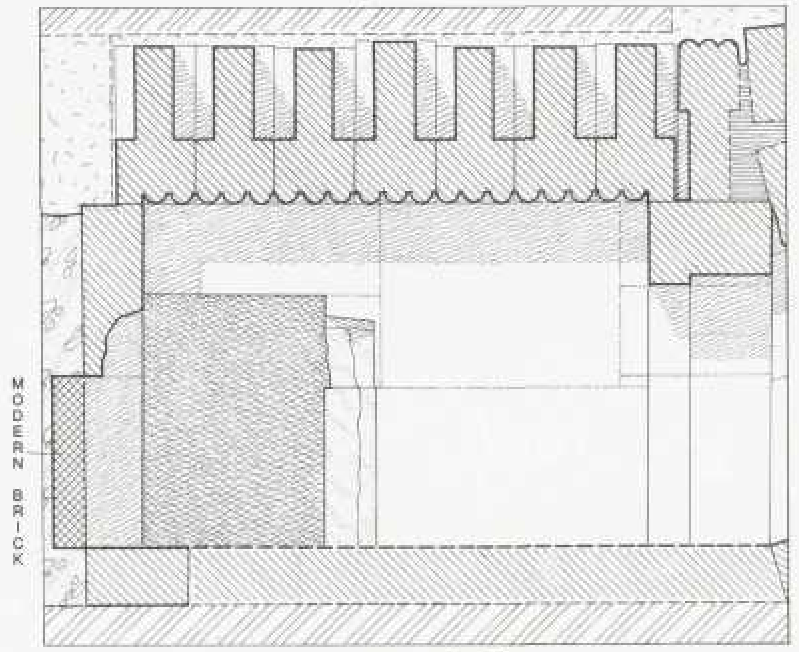


Pl. 66d. South tomb of pyramid 9 (Weret II). View from the rock-cut chamber into the shrine, facing north. Photo D.A. (DH 94:720).

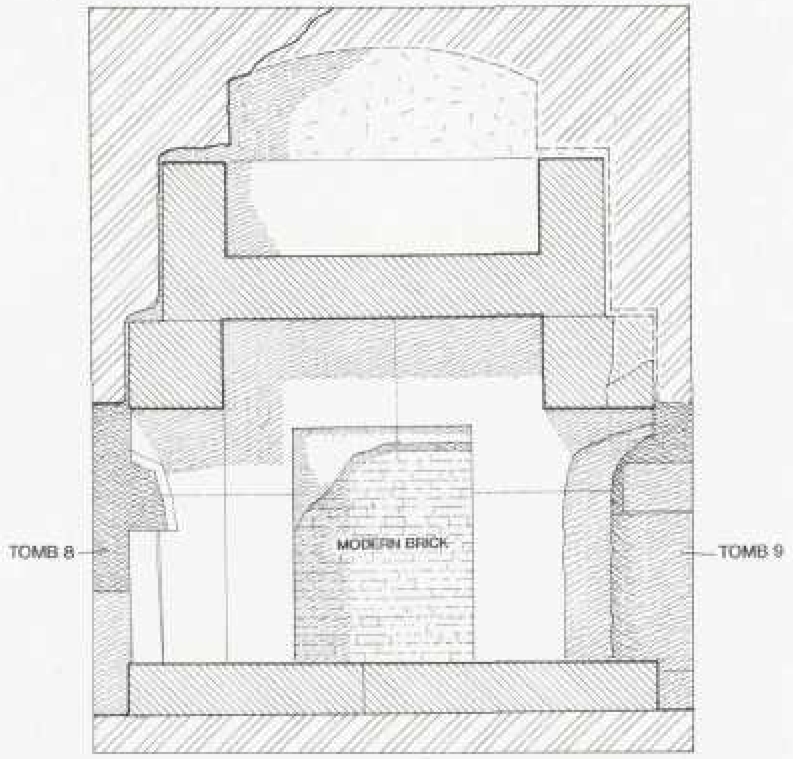


Pl. 67. Overall plan and section of the queens' gallery. Direction of diagonal lines indicates different levels. Scale 1:200. Drawings R.V. from drawings by L.V., R.T., and D.A.

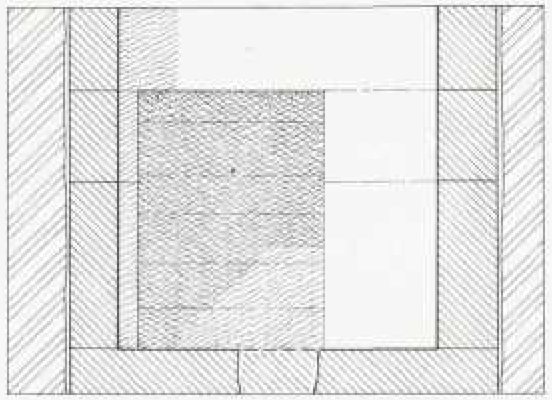




SECTION A–B

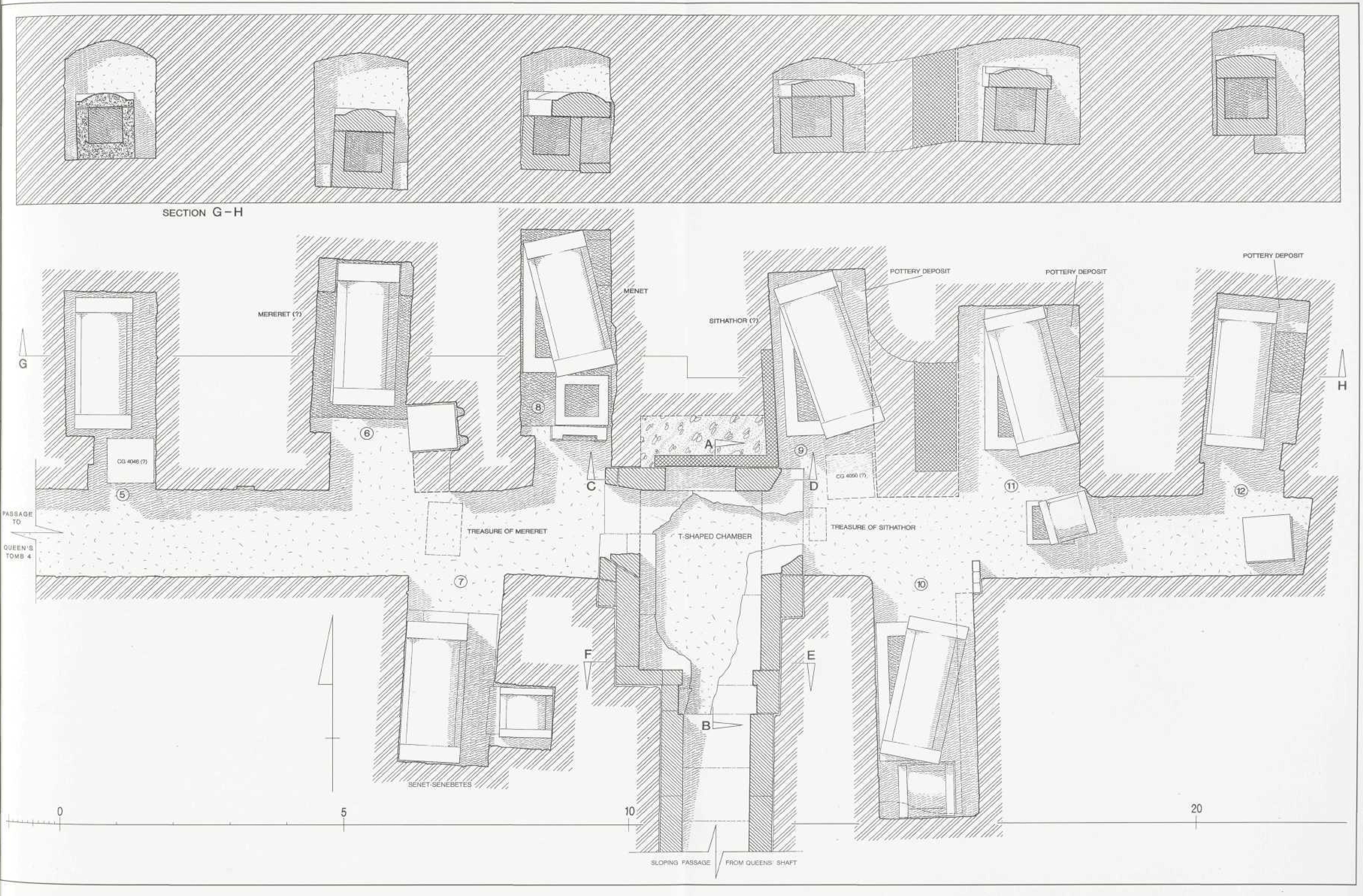


SECTION C–D

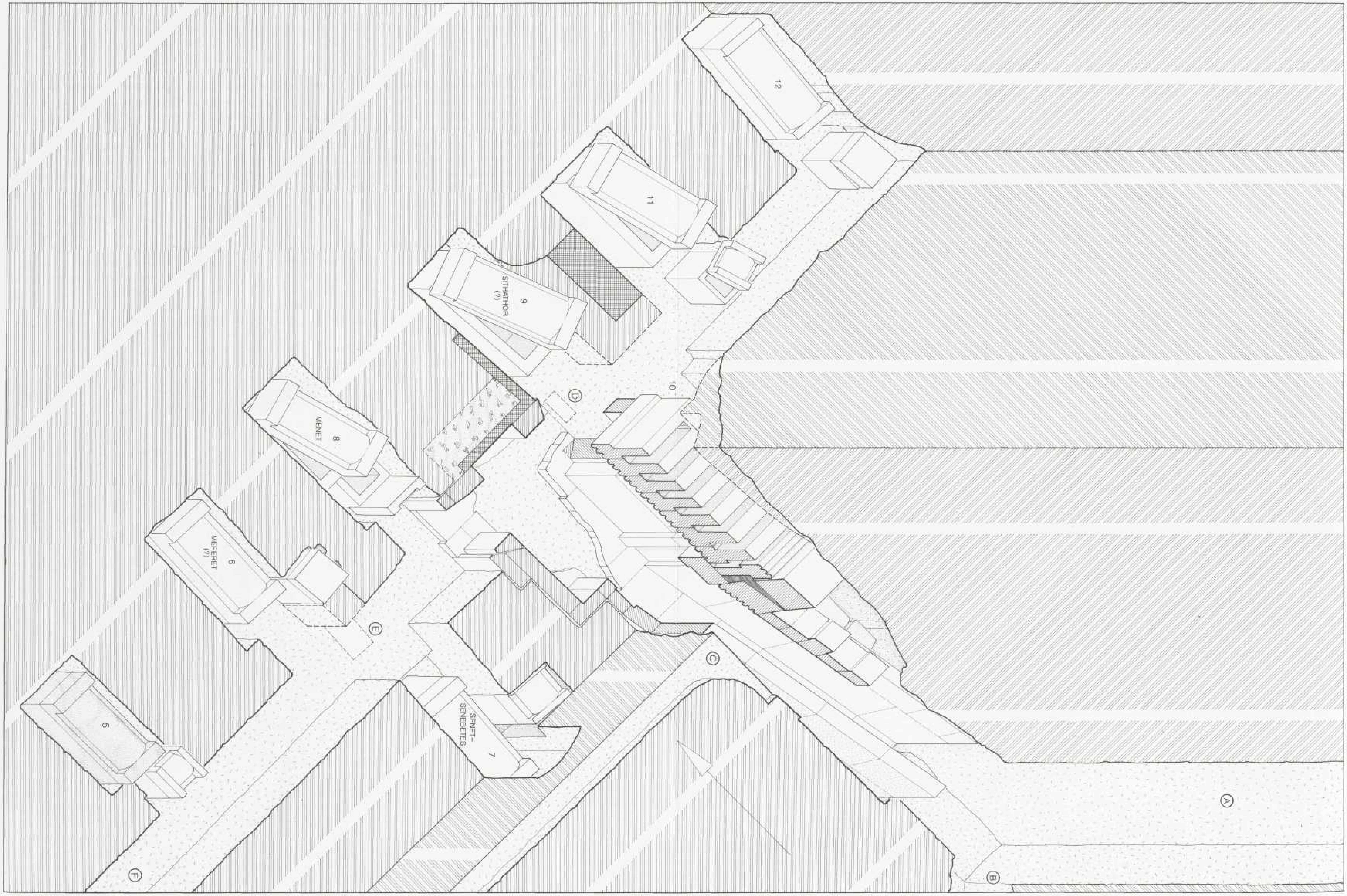


SECTION E–F

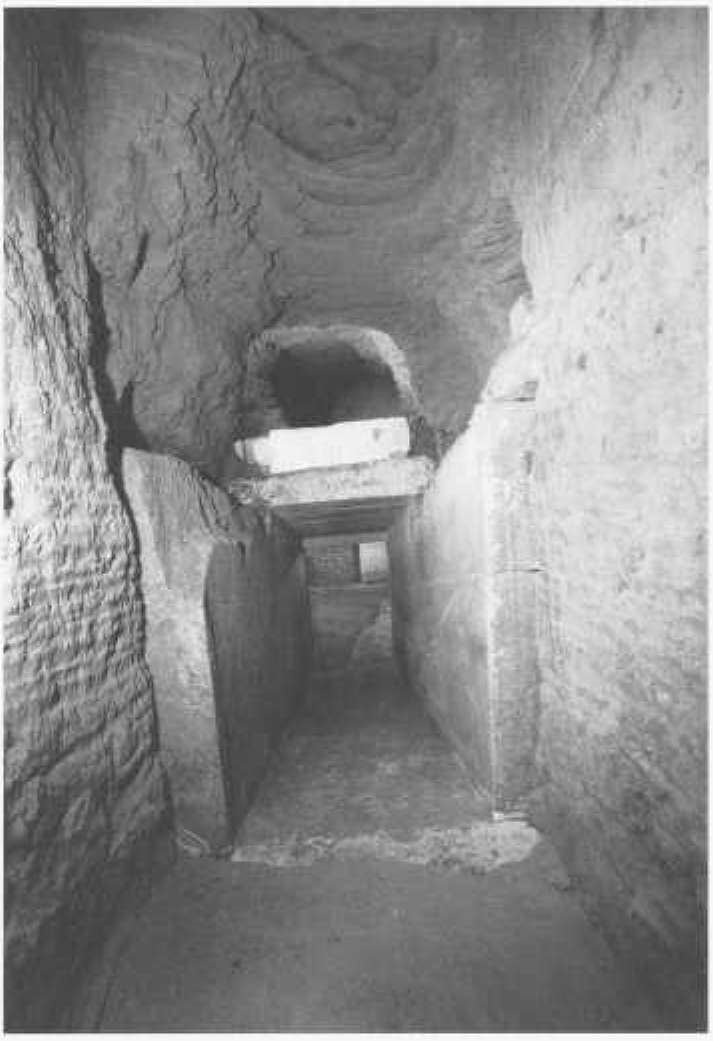
Pl. 68. Plan, south-north longitudinal section, and longitudinal and transverse sections of the queens' shaft, roof, sloping passage, and T-shaped chamber of the queens' gallery. For locations of sections A–B, C–D, and E–F, see pl. 69; for roof blocks 1–3, see p. 56. "Graffito" marks control note of year 30. Scale 1:50. Drawings R.V. from drawing by D.A.



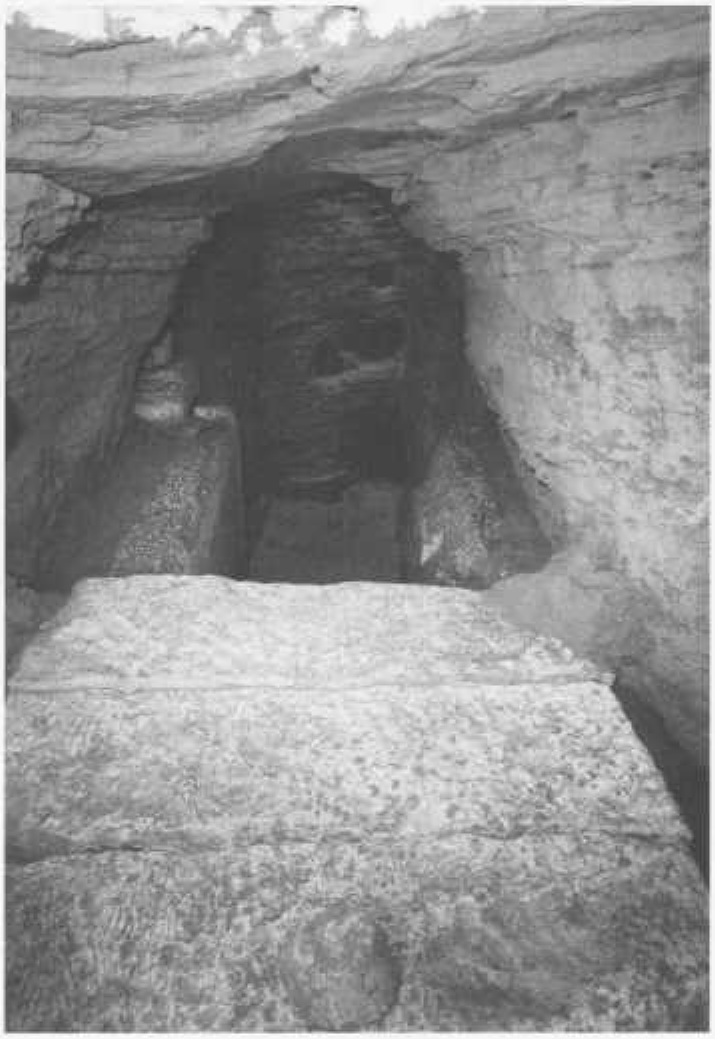
Pl. 69. Plan and west-east section of the subsidiary queens' gallery. For other sections see pl. 68. Scale 1:50. Drawings R.V. from drawings by R.T.



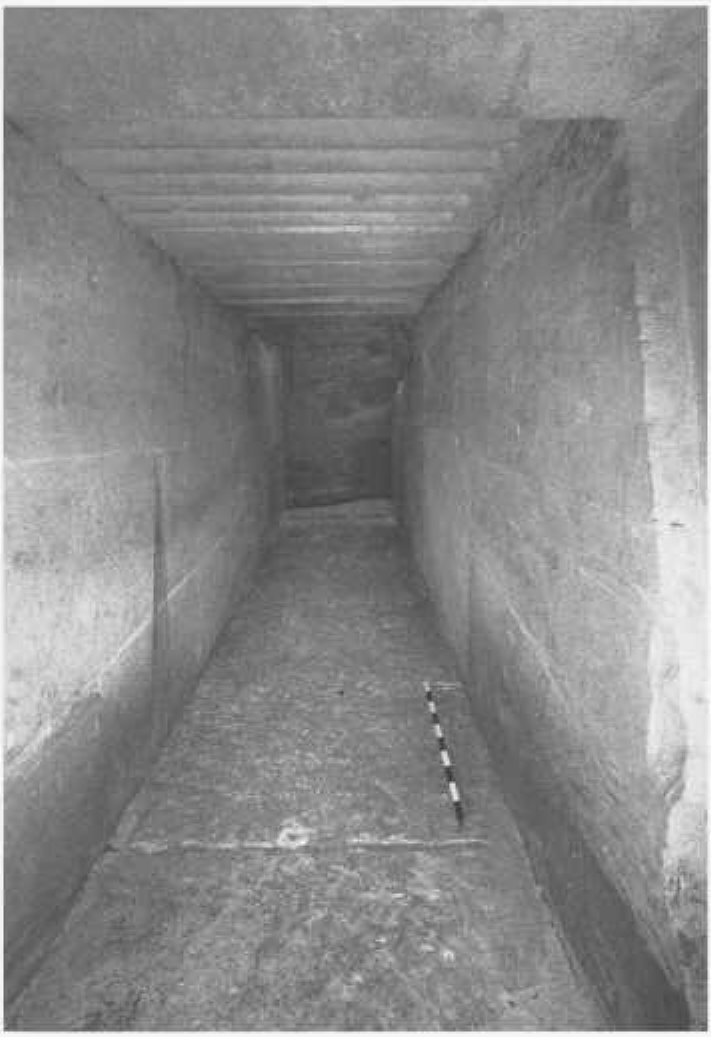
Pl. 70. Axonometric view of the subsidiary queens' gallery. *A)* Queens' shaft. *B)* Start of De Morgan's tunnel under the king's pyramid. *C)* Upper corridor. *D)* Treasure of Sithathor ("first treasure"). *E)* Treasure of Mereret ("second treasure"). No scale. Construction and drawing R.V.



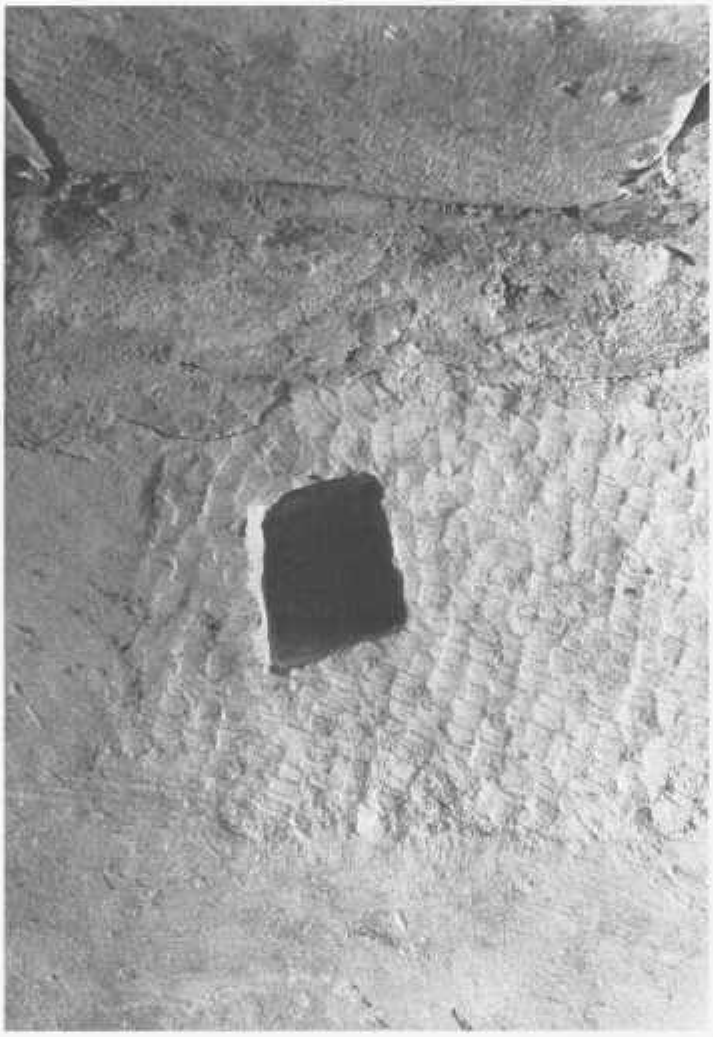
Pl. 71a. View from the main queens' shaft into the sloping passage, facing north. Ceiling above the passage has collapsed. Photo G.D. (DH 90:113).



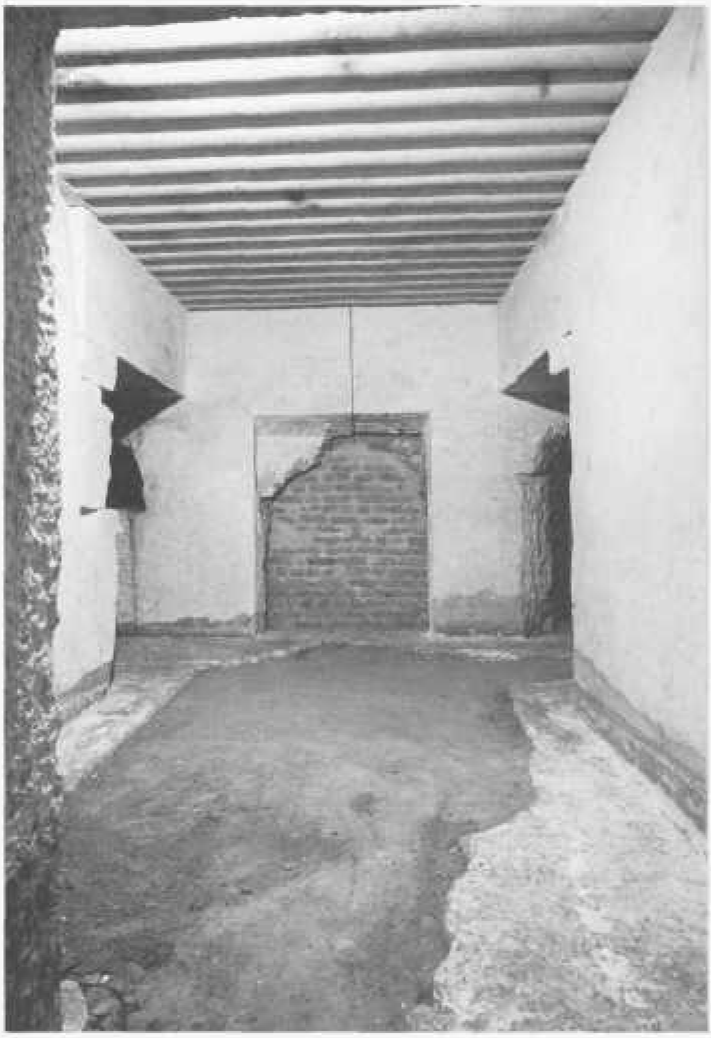
Pl. 71b. View from the roof of the sloping passage of the queens' tombs into the main queens' shaft, facing south. Photo G.D. (DH 90:117).



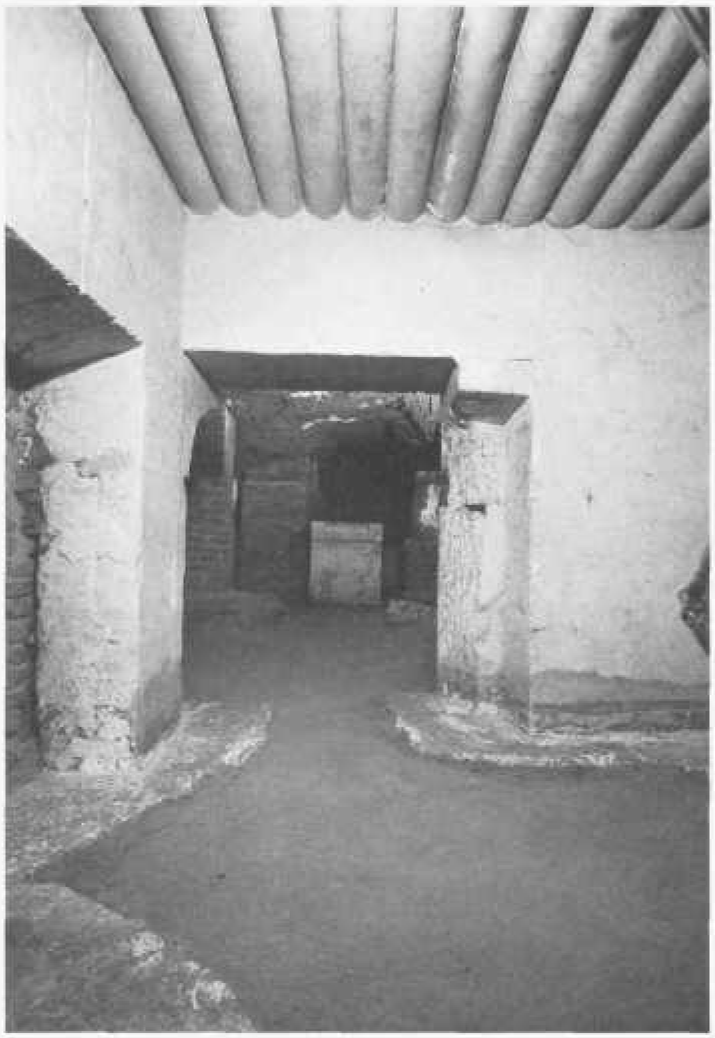
Pl. 71c. The sloping passage to the queens' tombs, facing south. The start of De Morgan's tunnel that leads under the king's pyramid is visible on the south side of the shaft. Photo G.D. (DH 90:111).



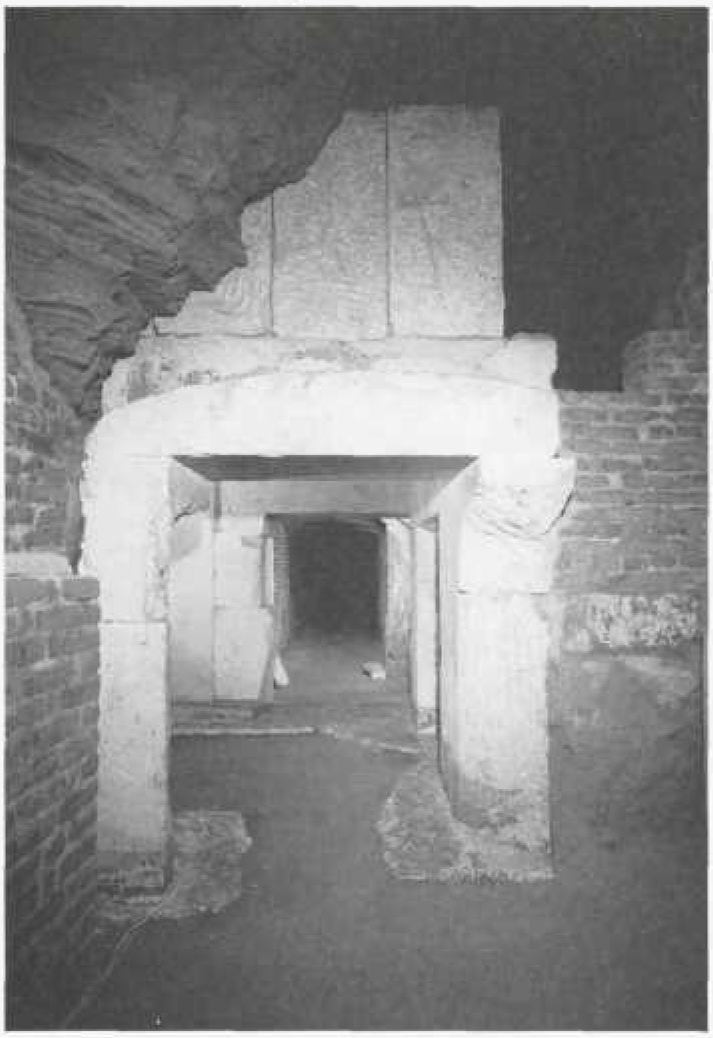
Pl. 71d. Putlog hole in the sloping passage to the queens' tombs. The upper edge of the wall was repaired after the reinstallation of the ceiling blocks. Photo G.D. (DH 90:316).



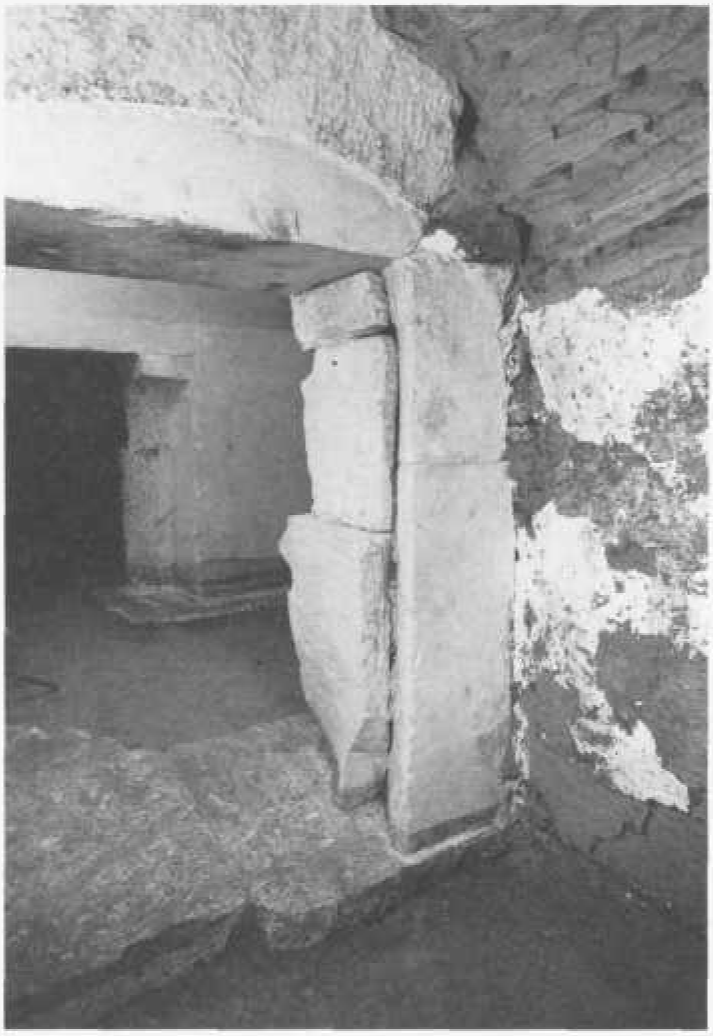
Pl. 72a. T-shaped chamber facing north. A modern brick blocking fills the niche in the rear wall. Photo G.D. (DH 90:91).



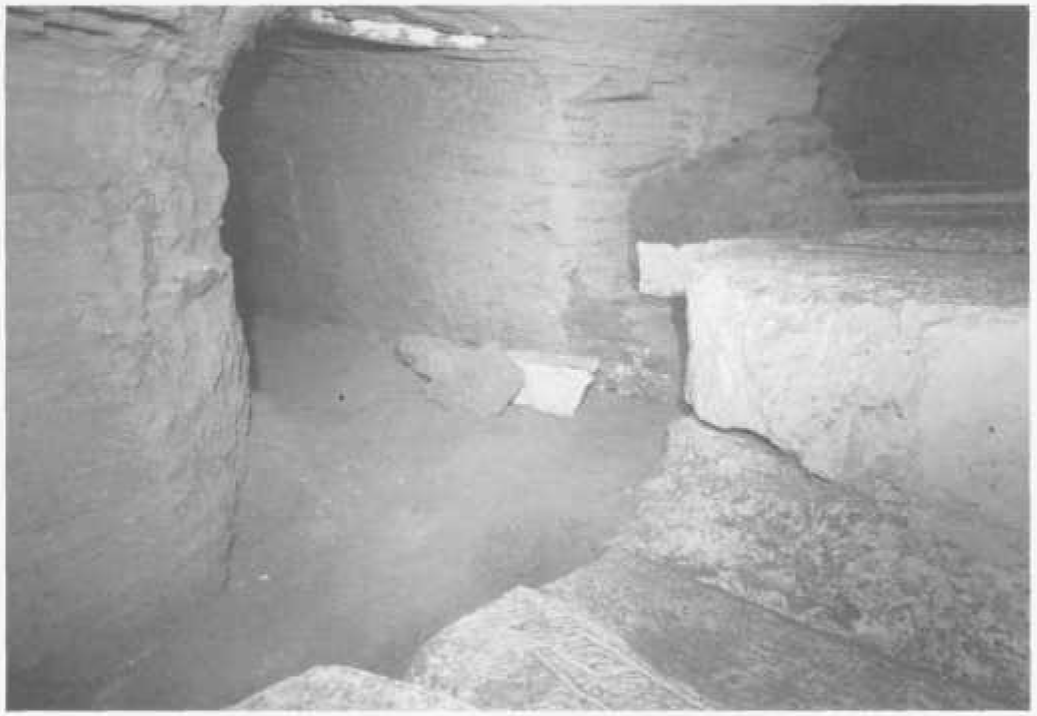
Pl. 72b. T-shaped chamber, facing the east branch of the subsidiary queens' gallery, with the canopic chest of tomb 11. Photo G.D. (DH 90:95).



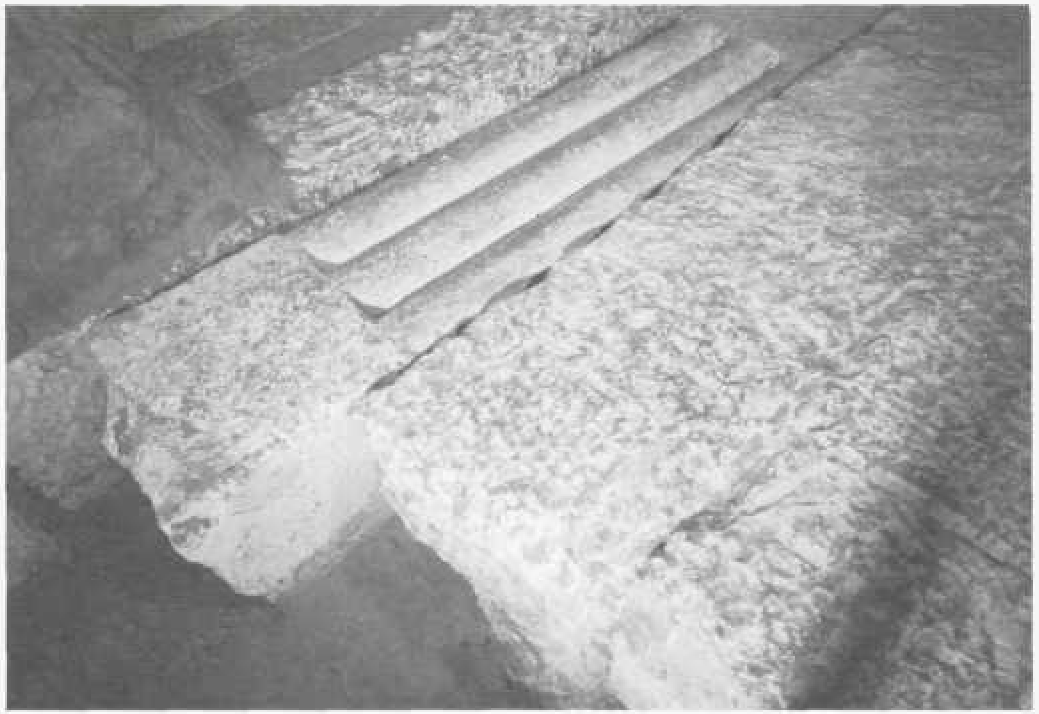
Pl. 72c. T-shaped chamber, seen from in front of tomb 9, facing west. The brickwork is modern. Photo G.D. (DH 90:85).



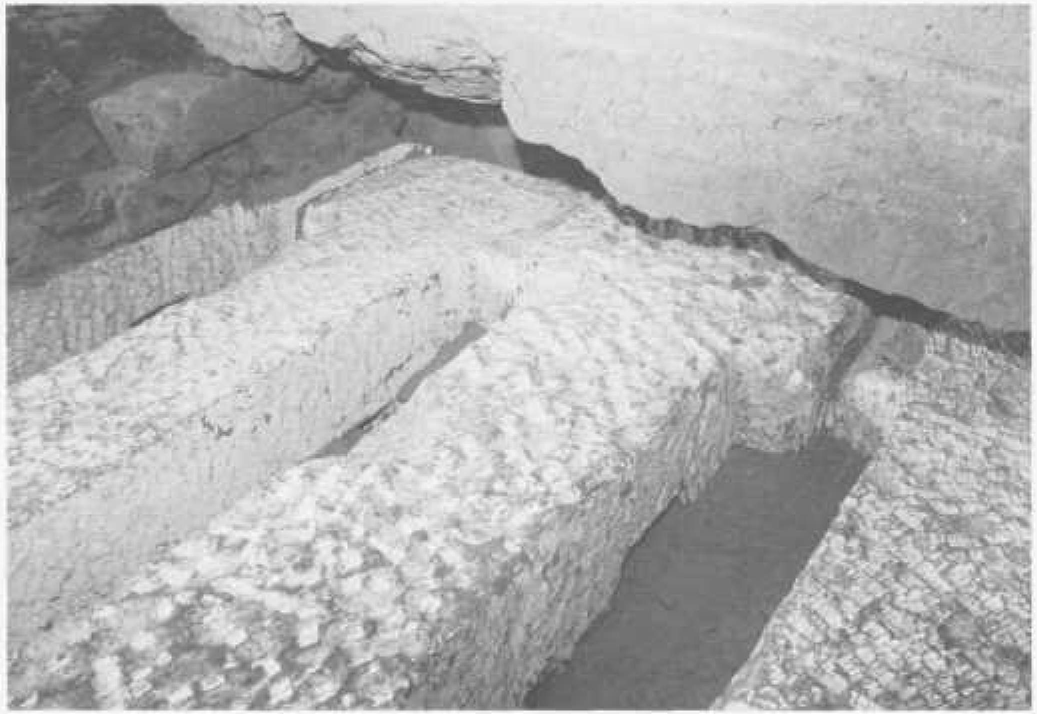
Pl. 72d. T-shaped chamber, seen from in front of tomb 8, facing east. The side wall is still covered with ancient plaster. Photo G.D. (DH 90:116).



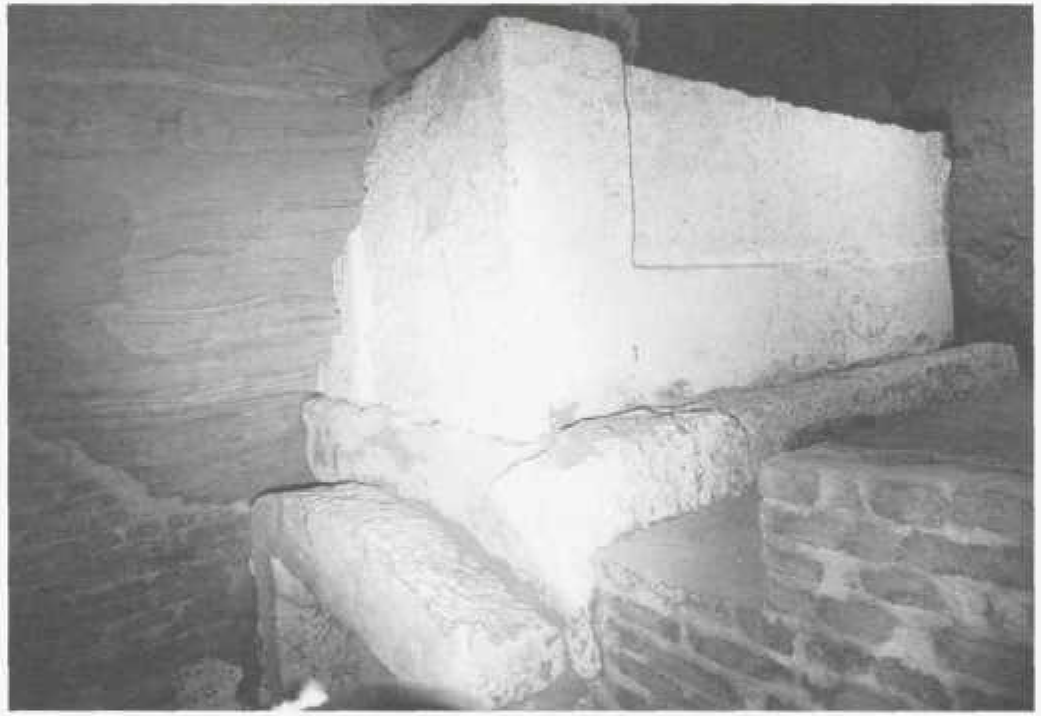
Pl. 73a. The entrance to the upper corridor (left) and the top of the roof of the sloping passage to the subsidiary queens' gallery (right), facing northwest. Photo G.D. (DH 90:120).



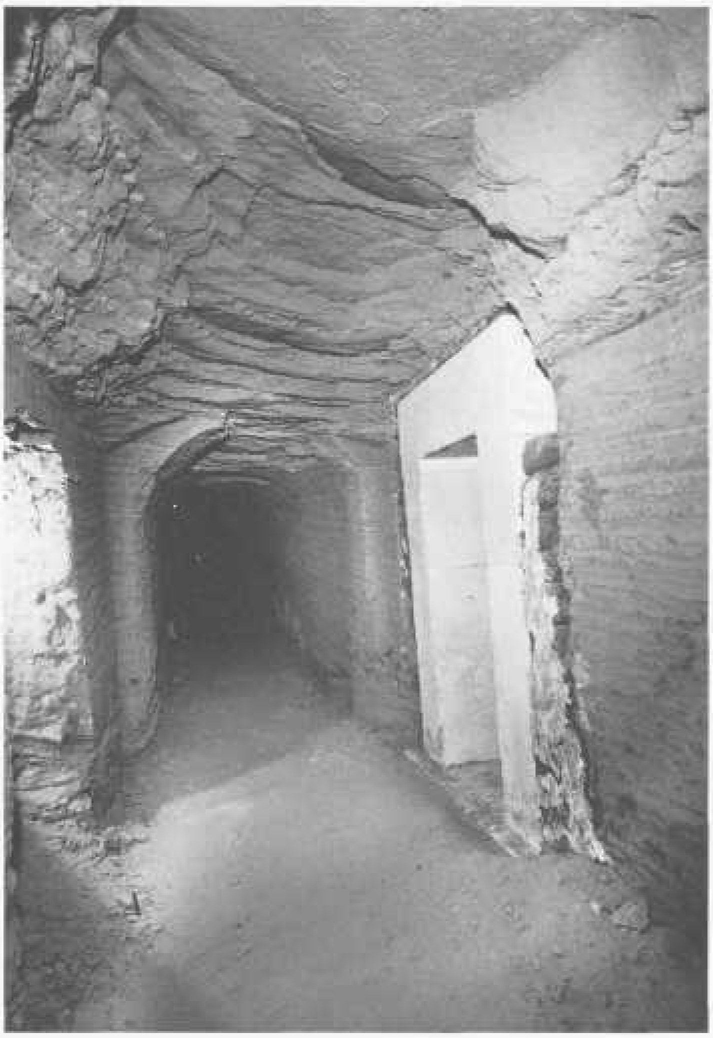
Pl. 73b. Blocks displaced during the remodeling of the roof of the sloping passage to the subsidiary queens' gallery. Photo G.D. (DH 90:122).



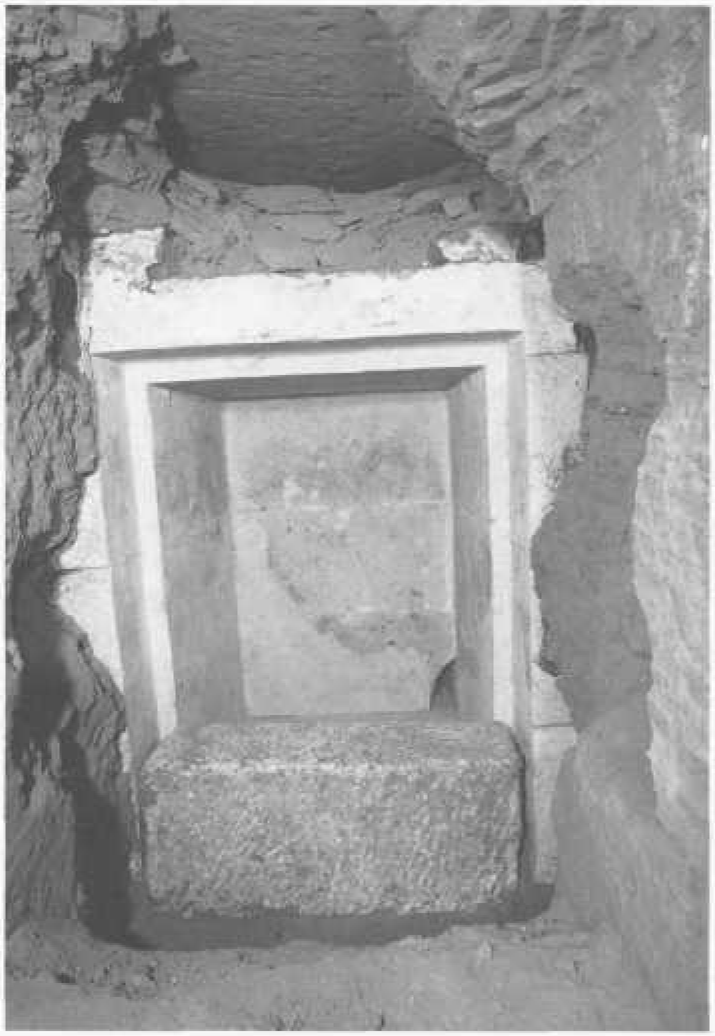
Pl. 73c. Top of the roof of the T-shaped chamber. The roof beams were hollowed out to reduce the weight. See fig. 19. Photo G.D. (DH 90:318).



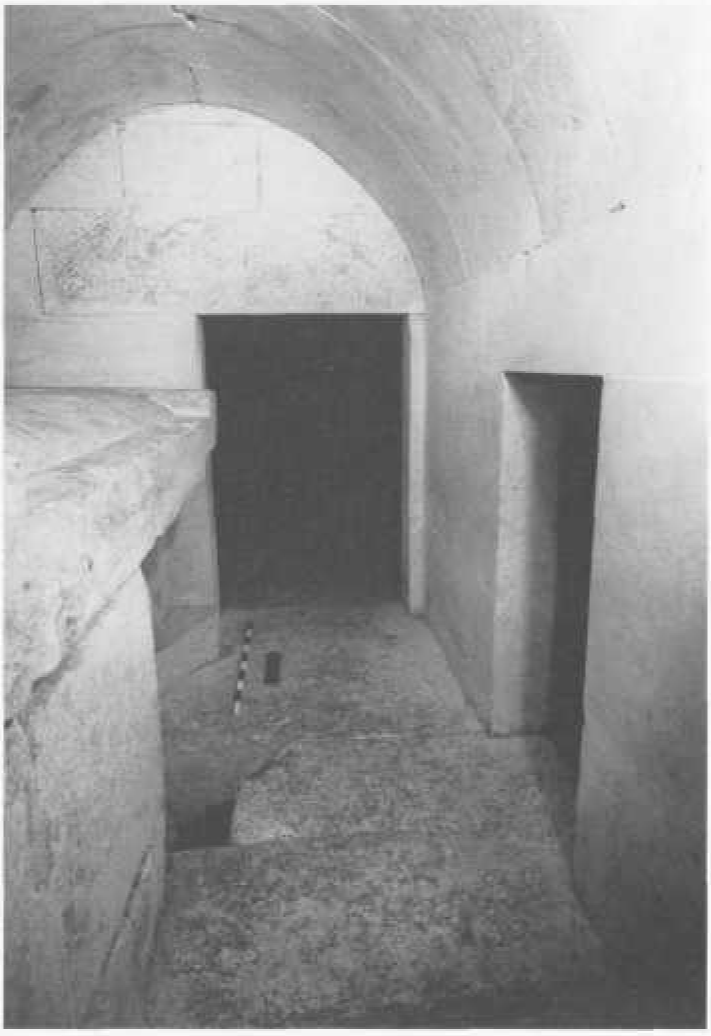
Pl. 73d. North end of the roof construction of the antechamber, with hollowed-out roof beams. All visible brickwork is modern. Photo G.D. (DH 90:98).



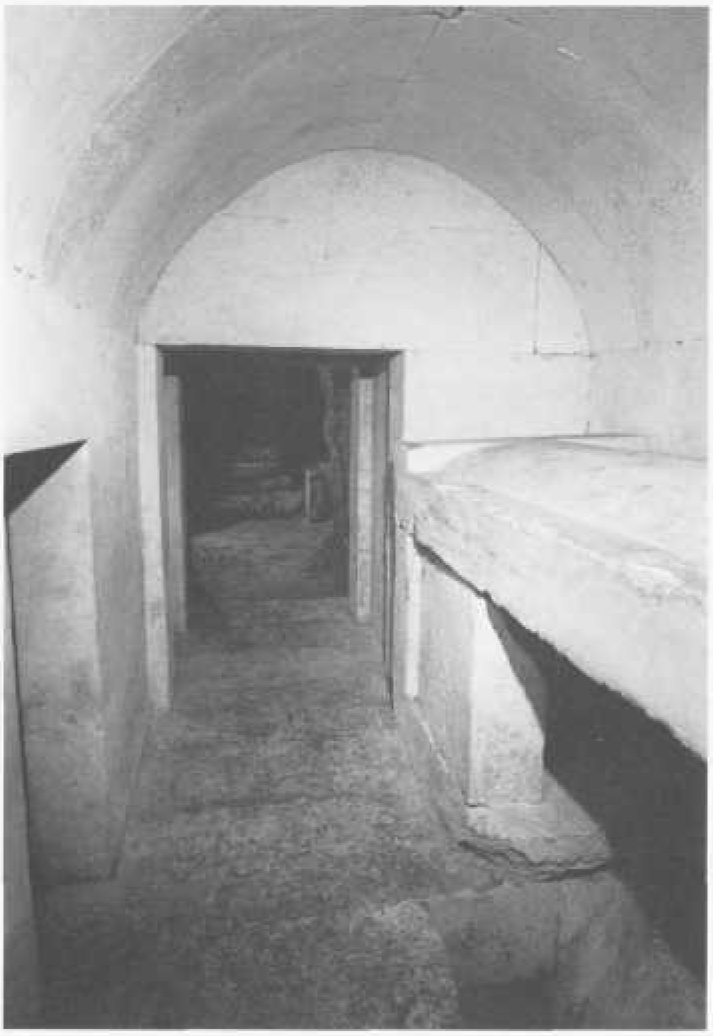
Pl. 74a. Tomb 4. Entrance gate in the upper corridor, facing west. Photo G.D. (DH 90:75).



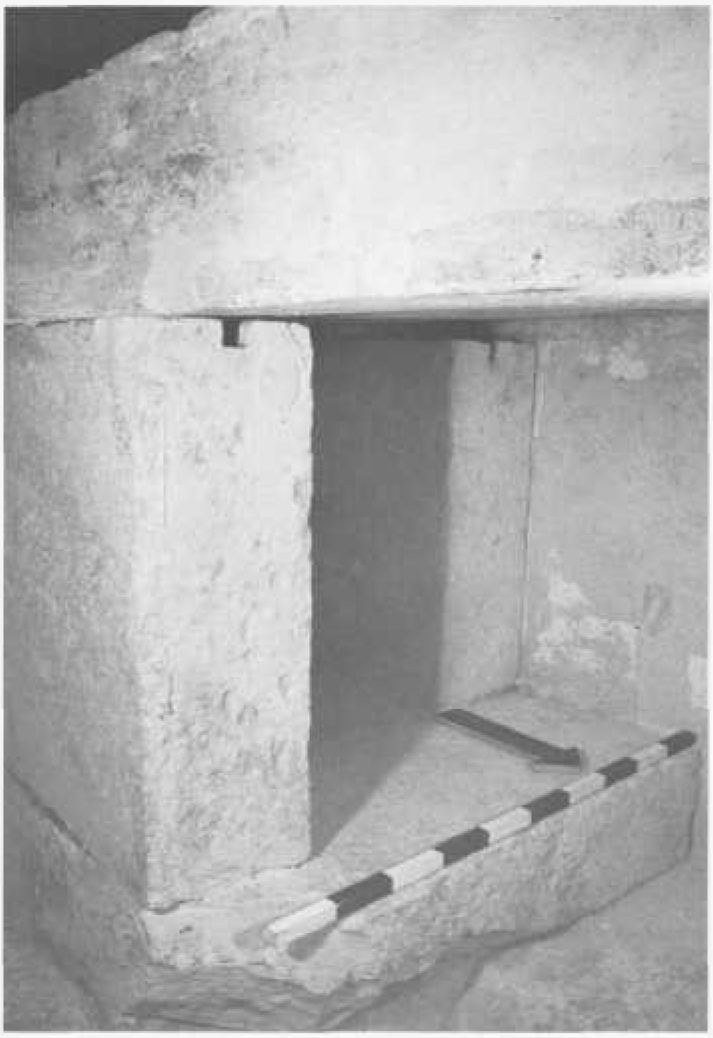
Pl. 74b. Tomb 4. Canopic shrine with the lowest course of the blocking, facing west. Photo G.D. (DH 90:71).



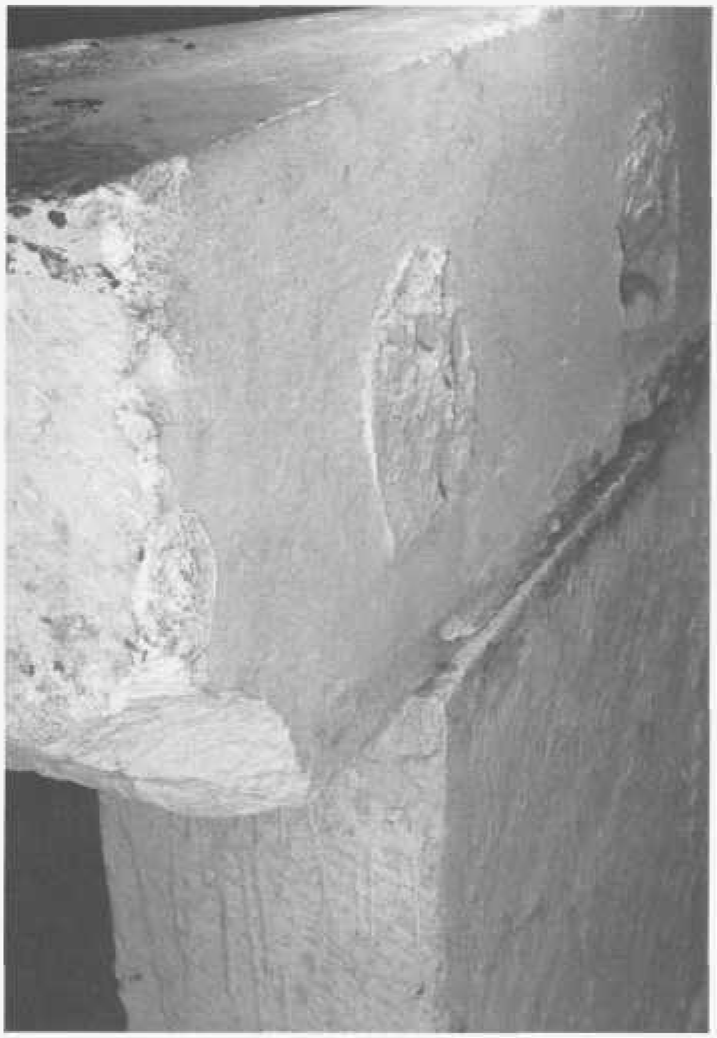
Pl. 74c. Tomb 4. Crypt, facing north. Photo G.D. (DH 90:62).



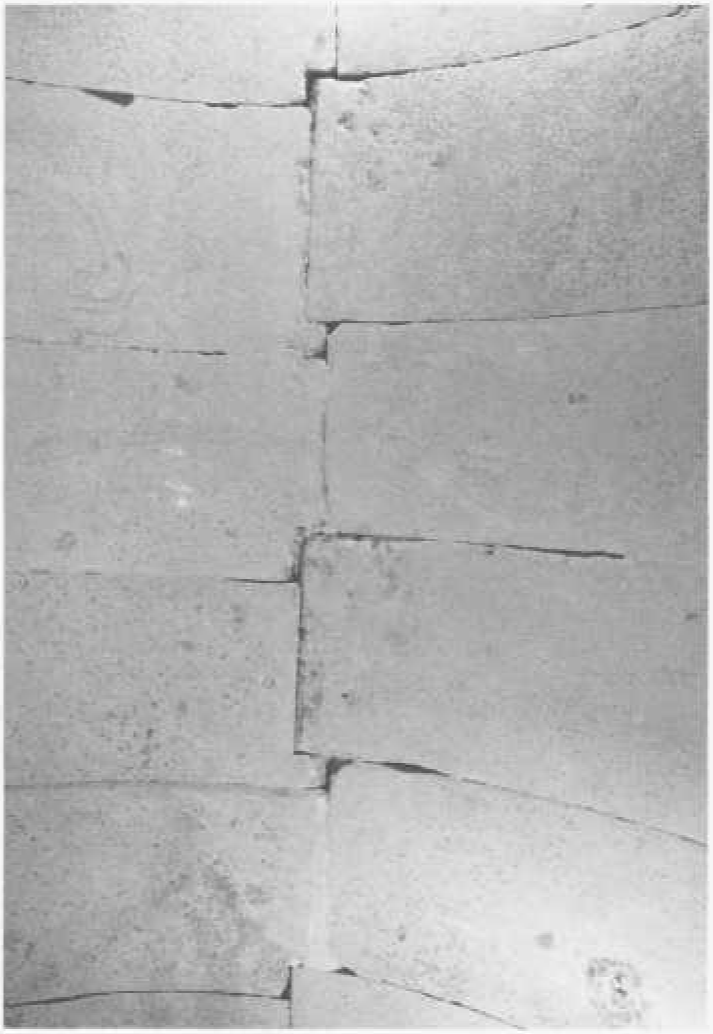
Pl. 74d. Tomb 4. Crypt, facing south. Photo G.D. (DH 90:64).



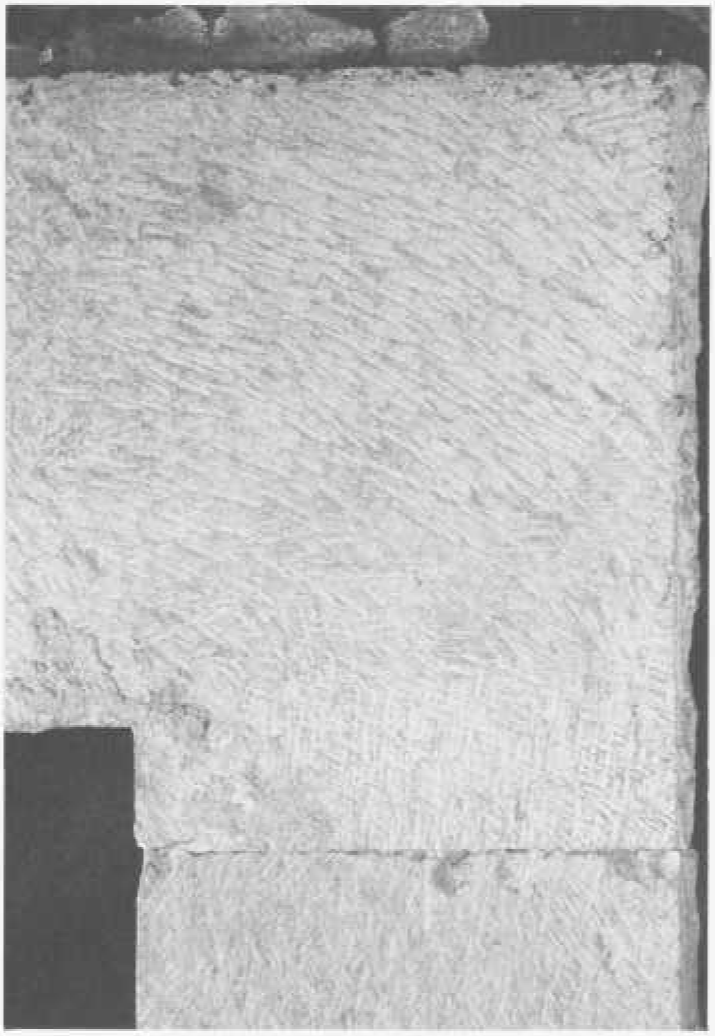
Pl. 75a. Tomb 4. Broken center section of the sarcophagus. Photo G.D. (DH 90:278).



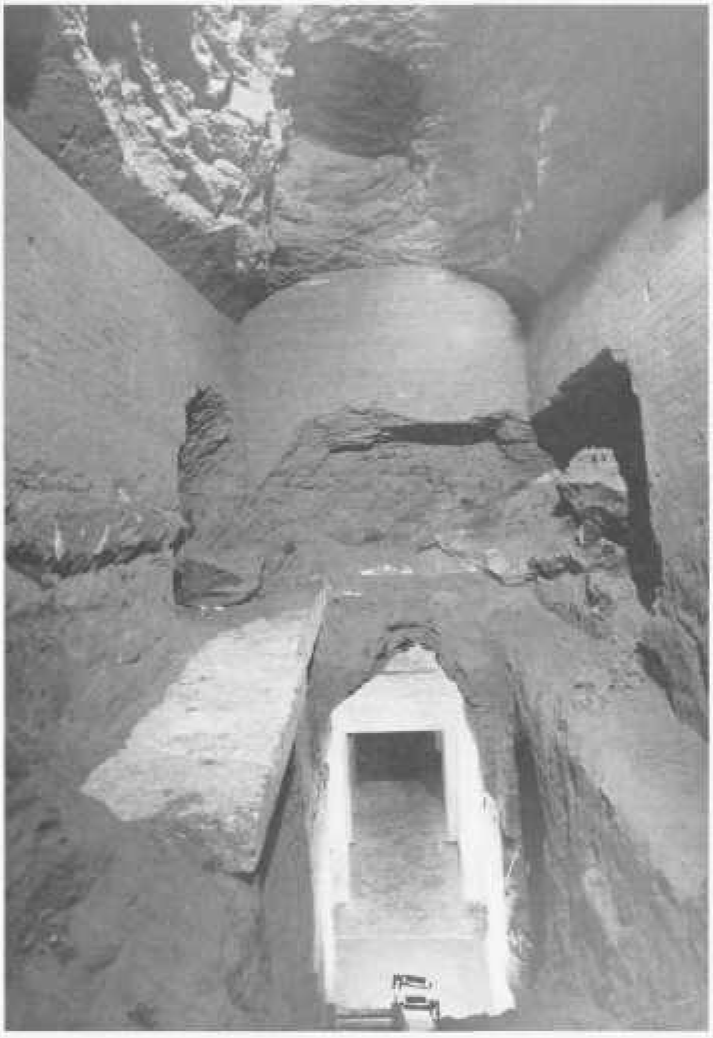
Pl. 75b. Tomb 4. North end of the sarcophagus lid with traces of removed handles. Photo G.D. (DH 90:281).



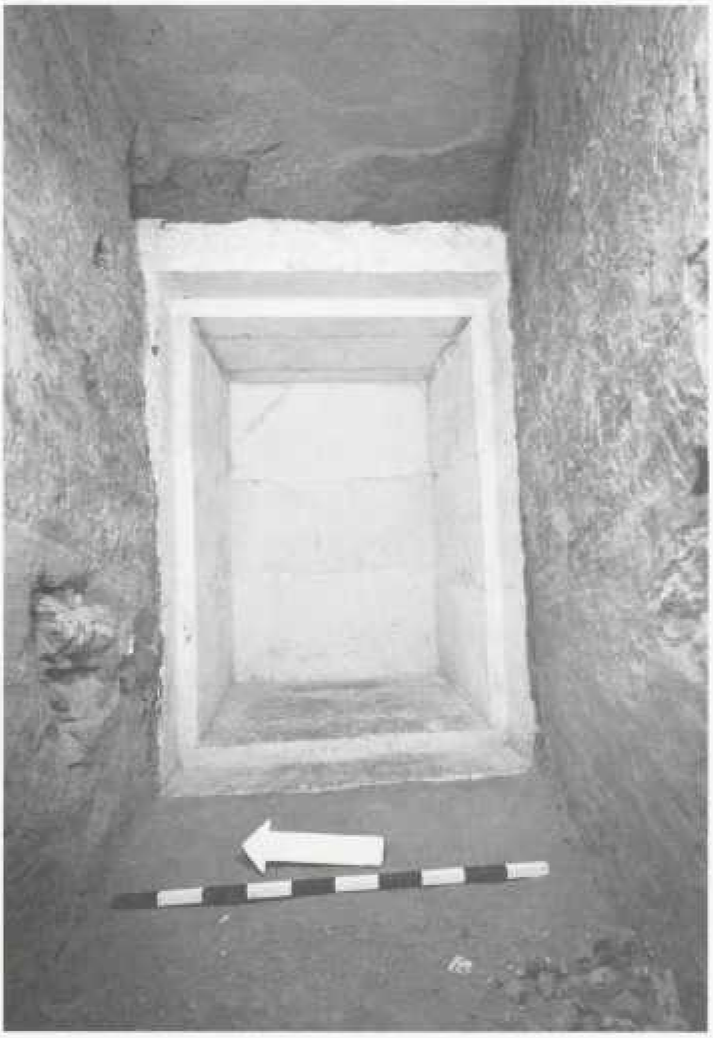
Pl. 75c. Tomb 4. Vault of crypt with interlocking pairs of roof beams. Photo G.D. (DH 90:275).



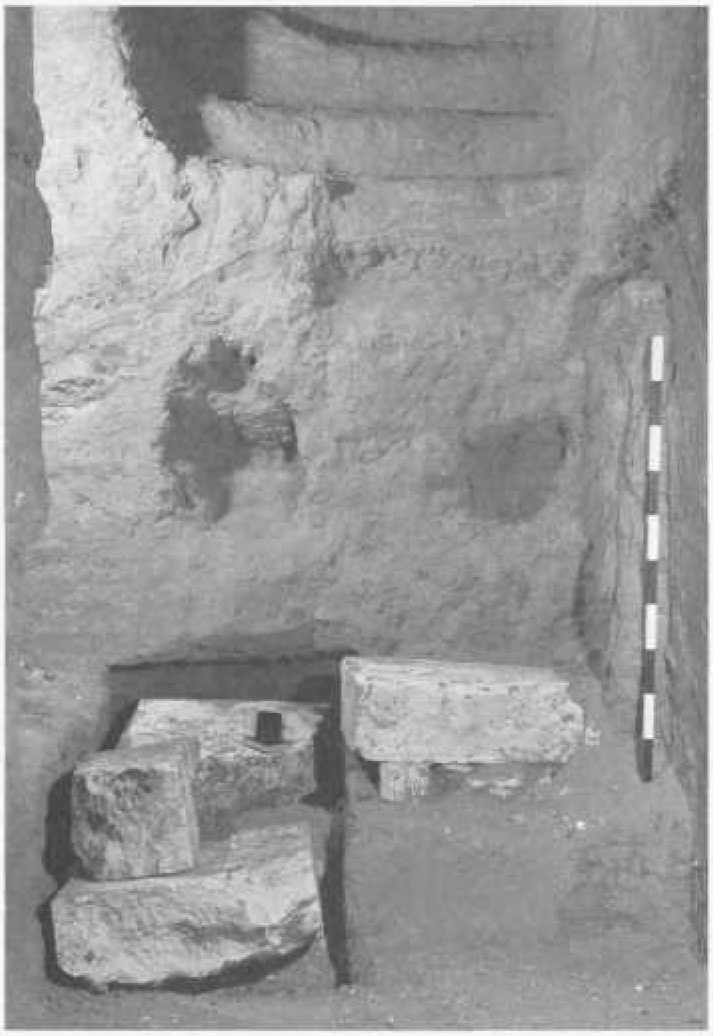
Pl. 75d. Tomb 4. Marks of round bar(?) chisels on the doorframe of the upper gate. Photo G.D. (DH: 90:290).



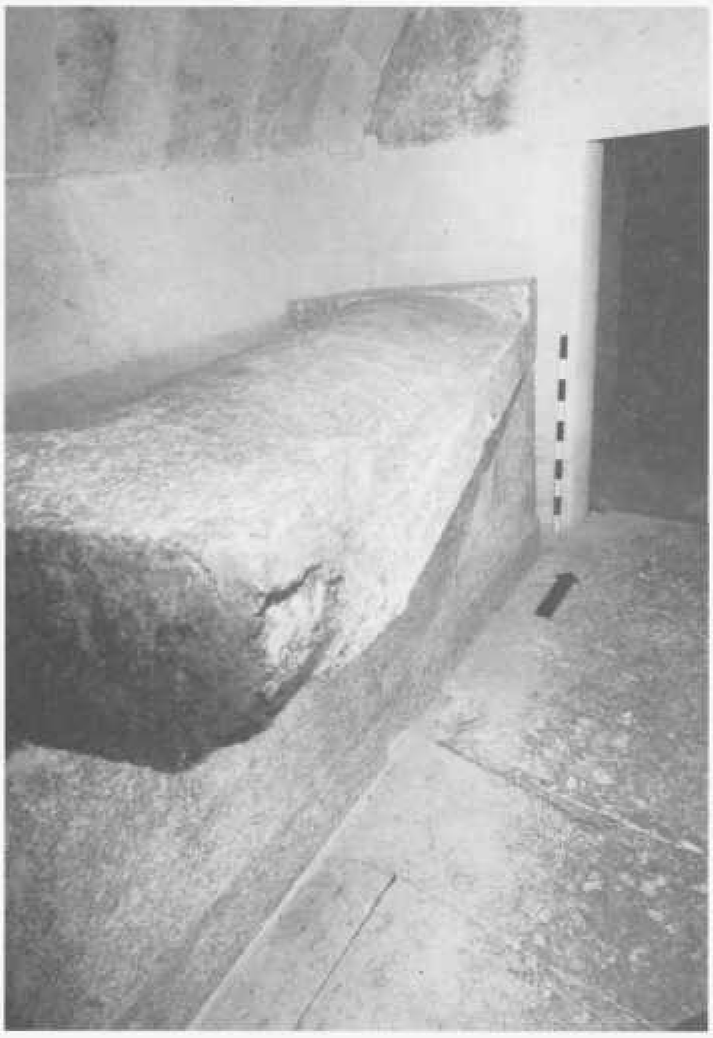
Pl. 76a. Tomb 3 (Itakayet). Upper chamber showing unsuccessful attempts to remove boulder inclusions, facing north. Photo G.D. (DH 90:37).



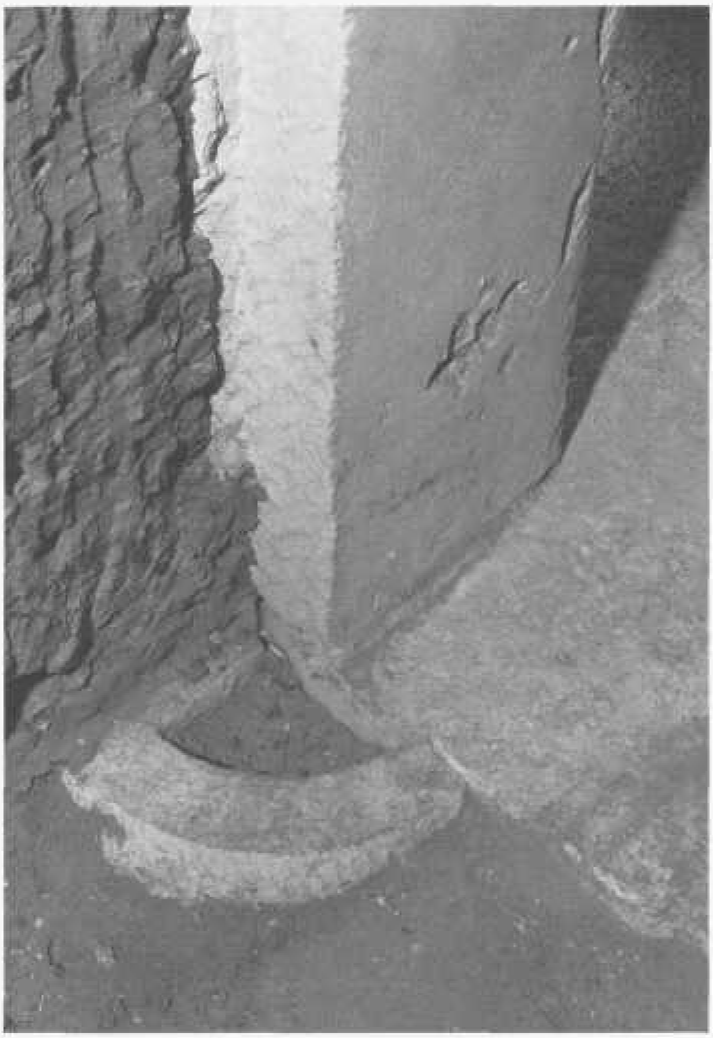
Pl. 76b. Tomb 3 (Itakayet). Canopic shrine, facing east. Photo G.D. (DH 90:18).



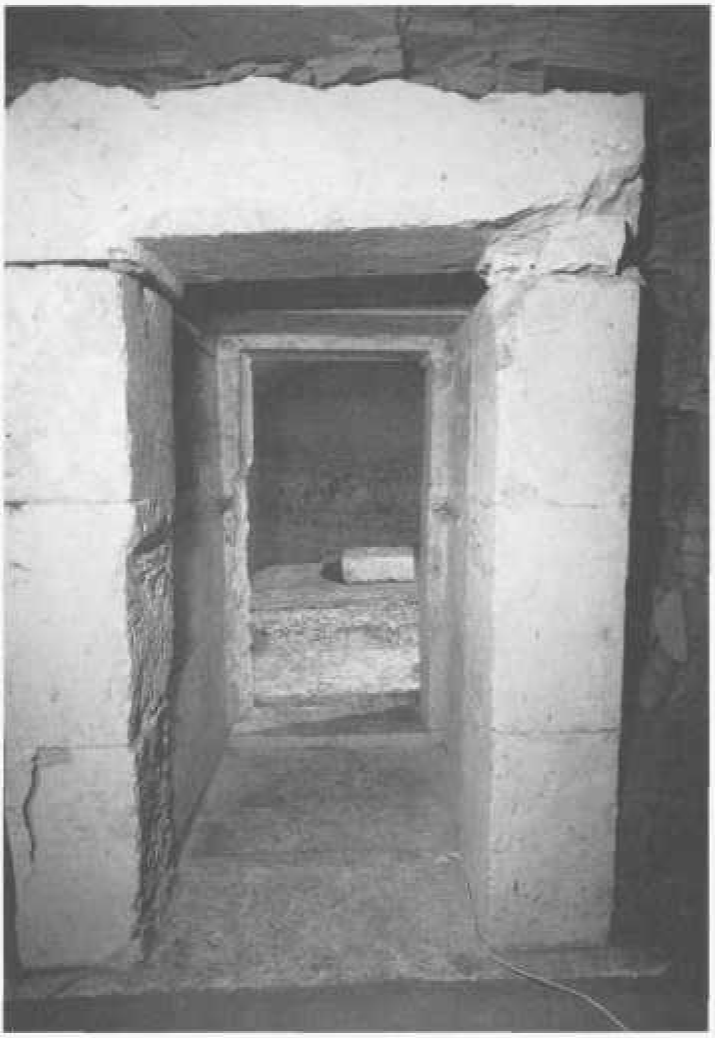
Pl. 76c. Tomb 3 (Itakayet). Staircase with putlog holes, and blocks filling an empty deposit hole in the floor, facing south. Photo G.D. (DH 90:207).



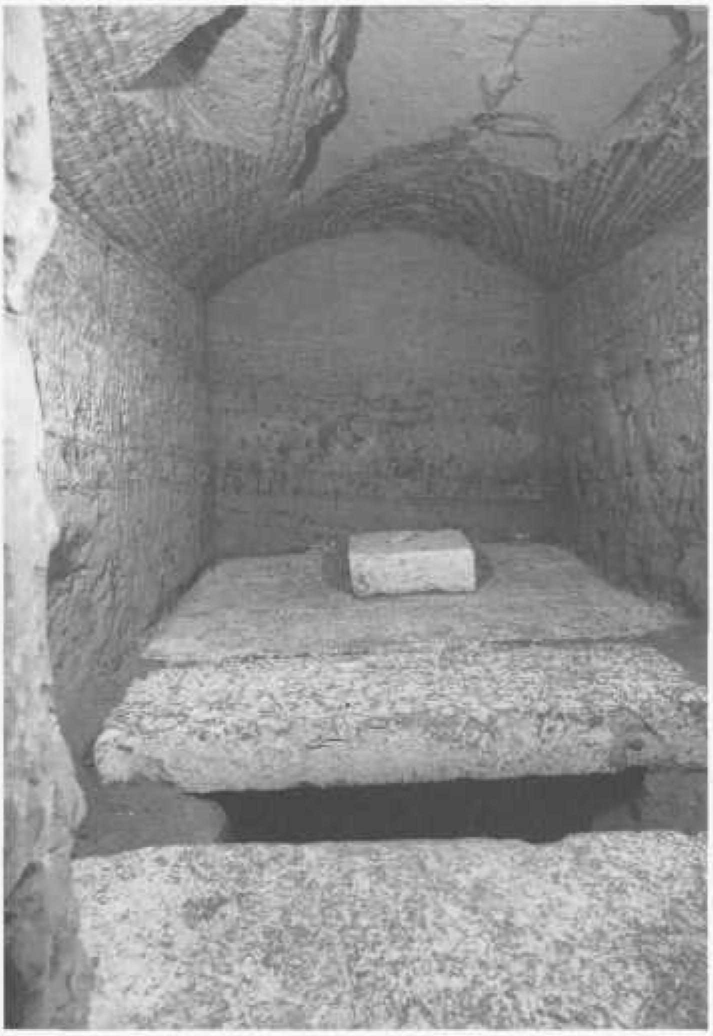
Pl. 76d. Tomb 3 (Itakayet). Crypt with partially open granite sarcophagus, facing northwest. Photo G.D. (DH 90:35).



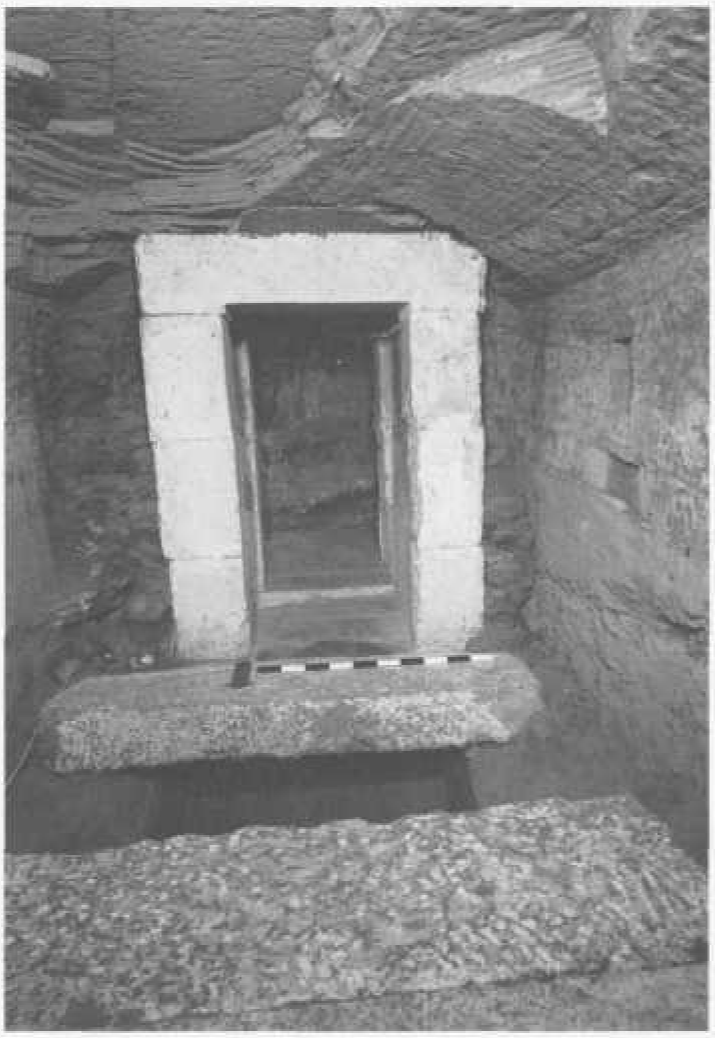
Pl. 77a. Tomb 3 (Itakayet). Pole shoe in the south side of the doorway of the east chamber. Photo G.D. (DH 90:200).



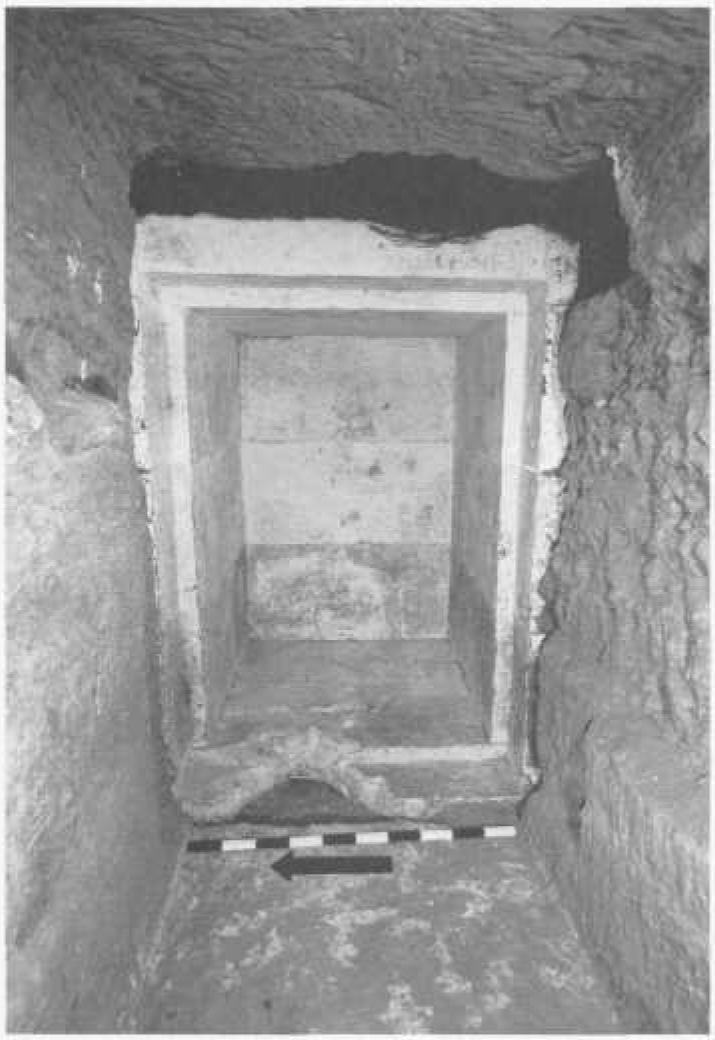
Pl. 77b. Tomb 2 (Nefret-henut). Entrance gate and upper chamber, facing north. The lower part of the left doorjamb was cut back for the introduction of the second sarcophagus. Photo G.D. (DH 90:23).



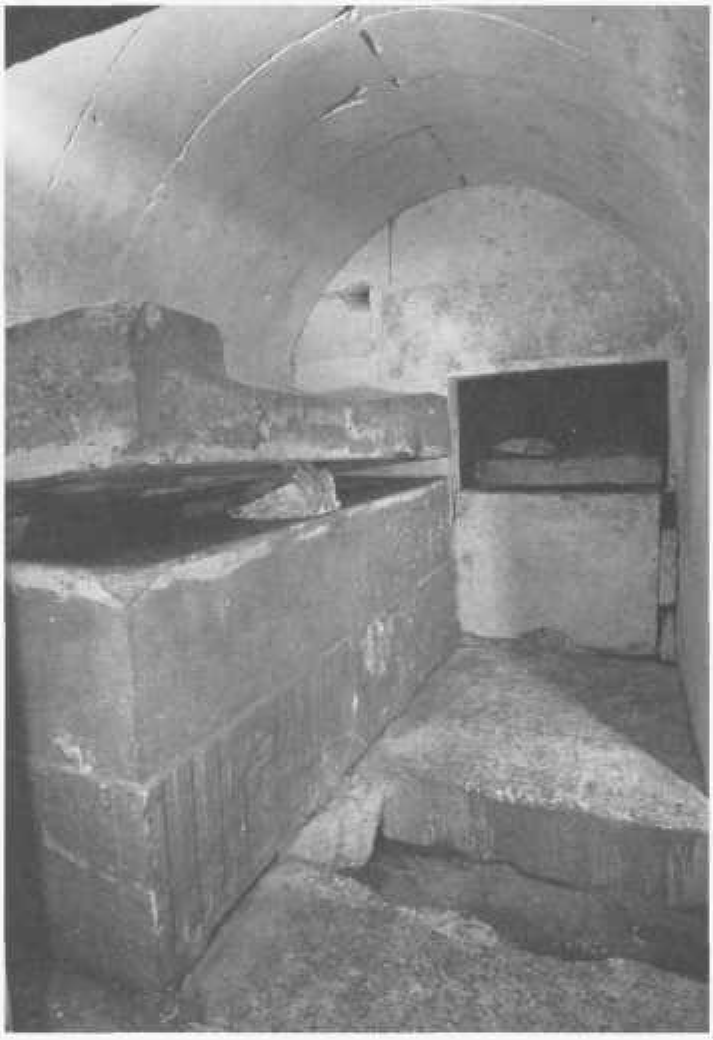
Pl. 77c. Tomb 2 (Nefret-henut). Upper chamber, facing north. The gap in the floor slabs leads to the lower level. Photo G.D. (DH 90:24).



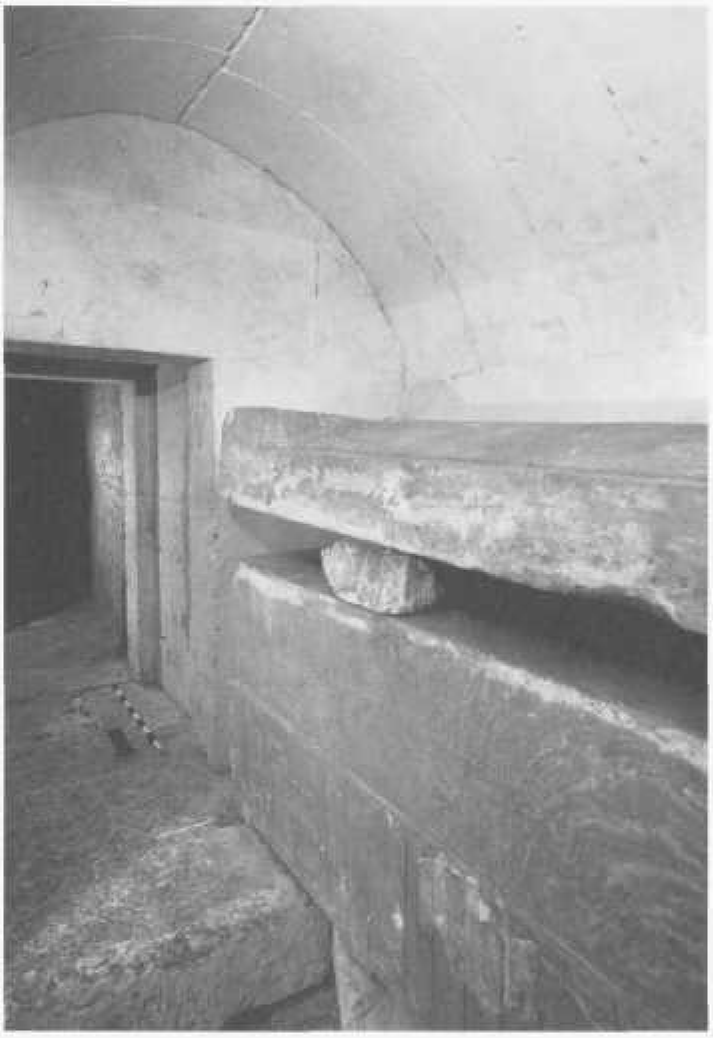
Pl. 77d. Tomb 2 (Nefret-henut). Upper chamber and entrance gate, facing south. Photo G.D. (DH 90:26).



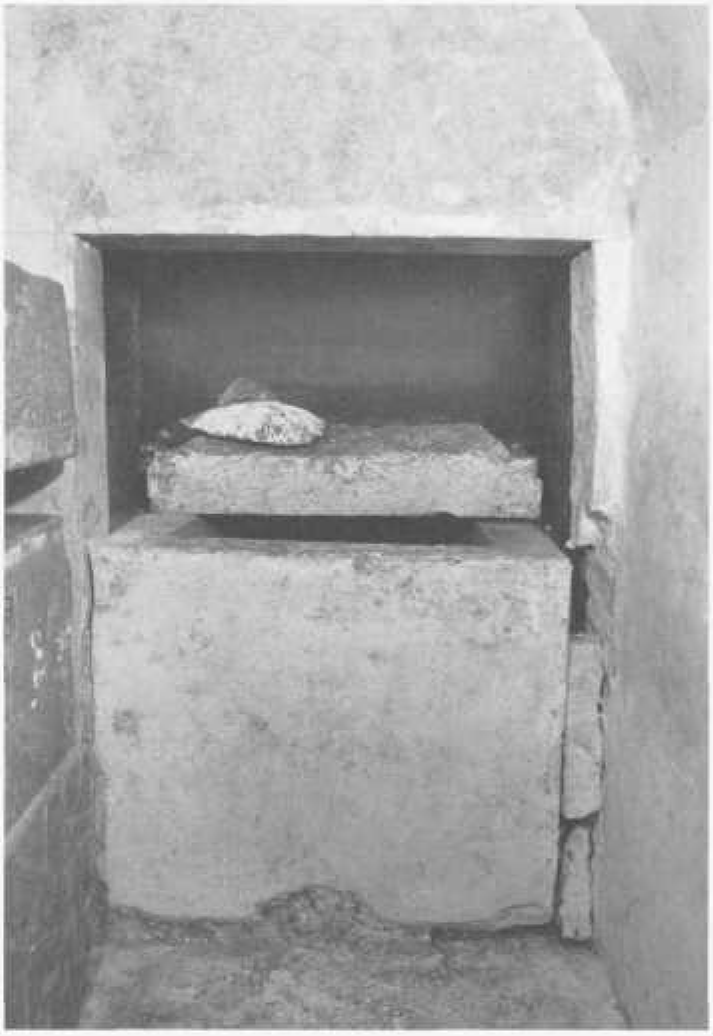
Pl. 78a. Tomb 2 (Nefret-henut). Canopic niche, facing east. Photo G.D. (DH 90:27).



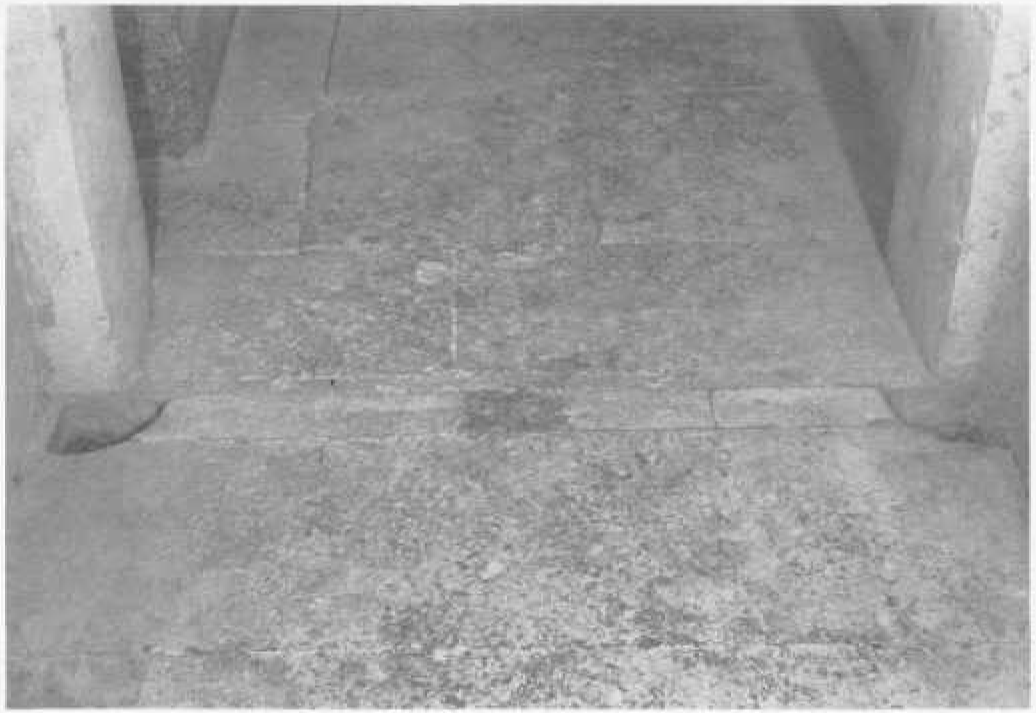
Pl. 78b. Tomb 2 (Nefret-henut). Crypt with partially open quartzite sarcophagus and a secondary sarcophagus in the chamber behind, facing northwest. Photo G.D. (DH 90:30).



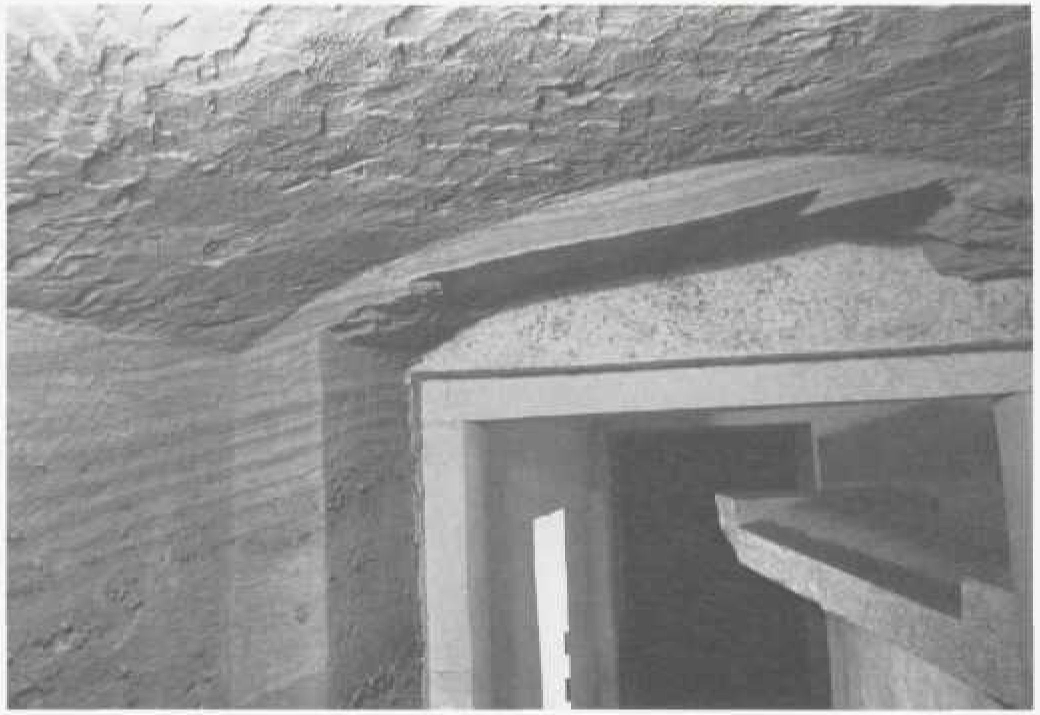
Pl. 78c. Tomb 2 (Nefret-henut). Crypt with partially open quartzite sarcophagus, facing southwest. Photo G.D. (DH 90:31).



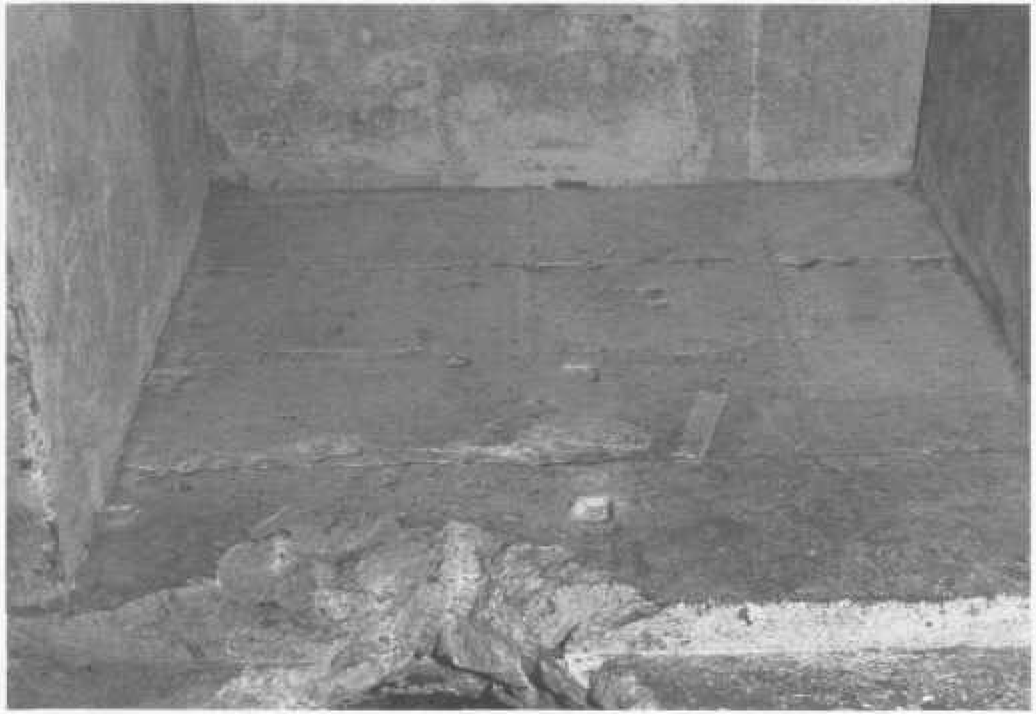
Pl. 78d. Tomb 2 (Nefret-henut). Secondary sarcophagus, facing north. The right doorjamb was cut back to allow the introduction of the second sarcophagus. Photo G.D. (DH 90:239).



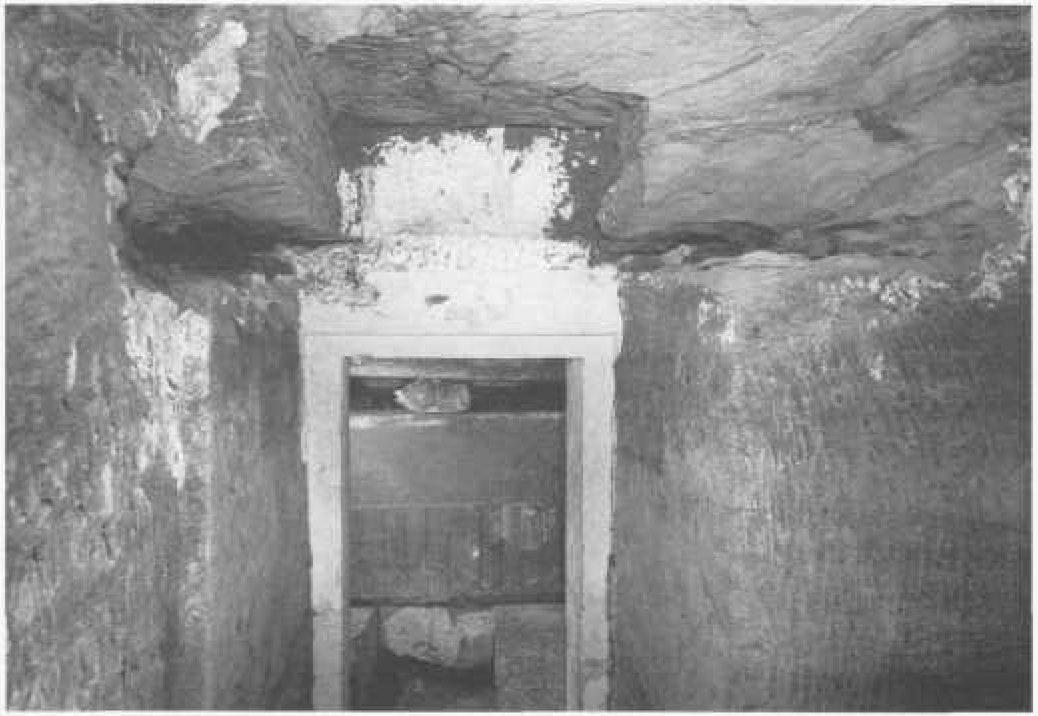
Pl. 79a. Tomb 3 (Itakayet). Pivot holes and groove for insertion of door wings at the inside of the entrance into the crypt. Photo G.D. (DH 90:212).



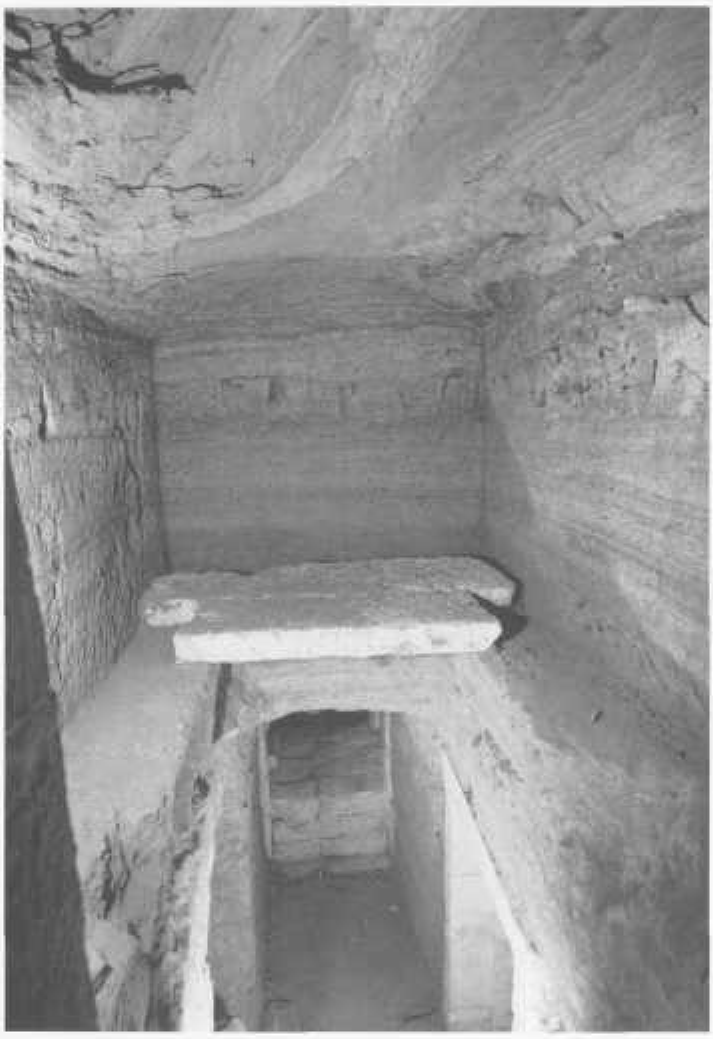
Pl. 79b. Tomb 3 (Itakayet). Rock-cut north chamber with limestone doorframe, facing south. Photo G.D. (DH 90:195).



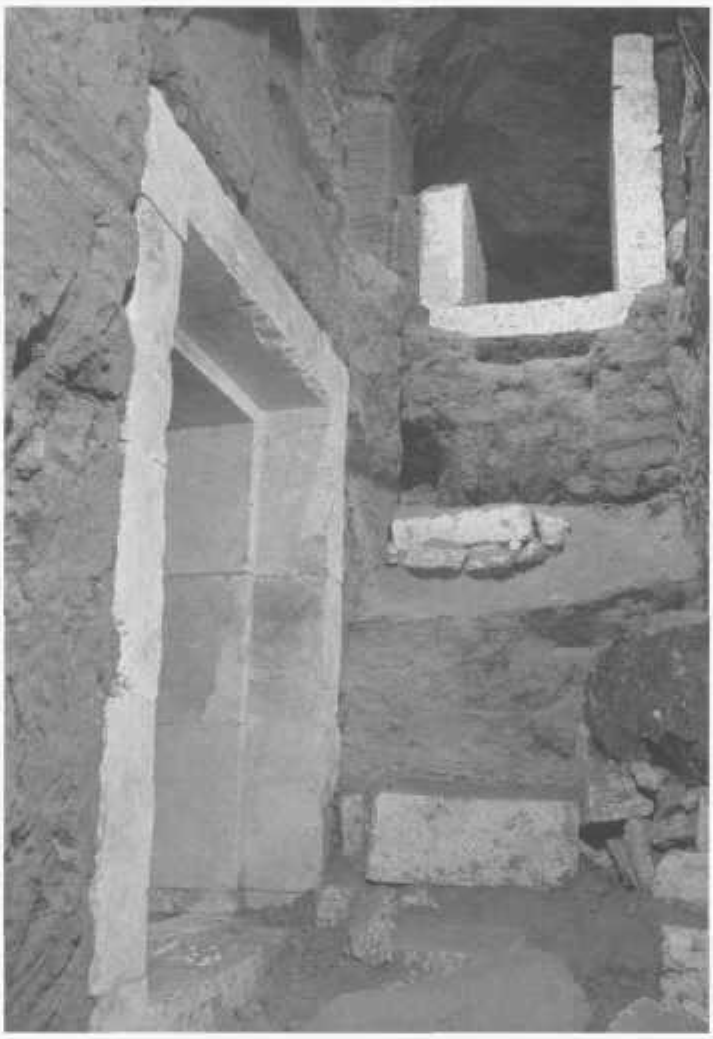
Pl. 79c. Tomb 2 (Nefret-henut). Unexplained depressions on the floor of the canopic shrine. Photo G.D. (DH 90:229).



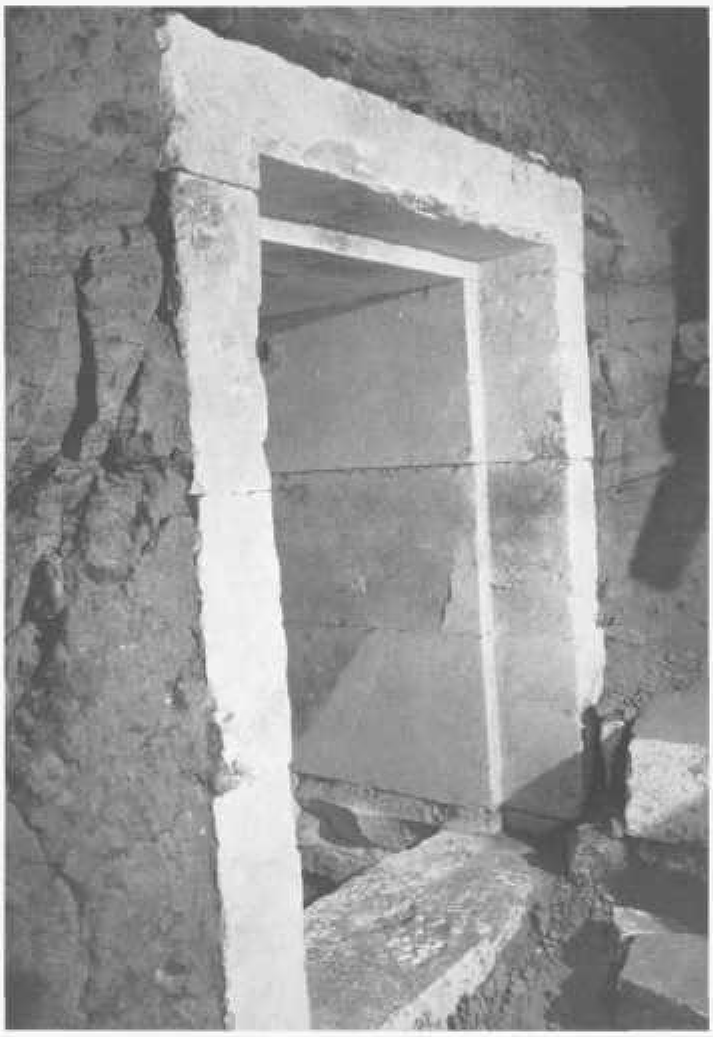
Pl. 79d. Tomb 2 (Nefret-henut). Rock-cut east chamber, facing west. Photo G.D. (DH 90:33).



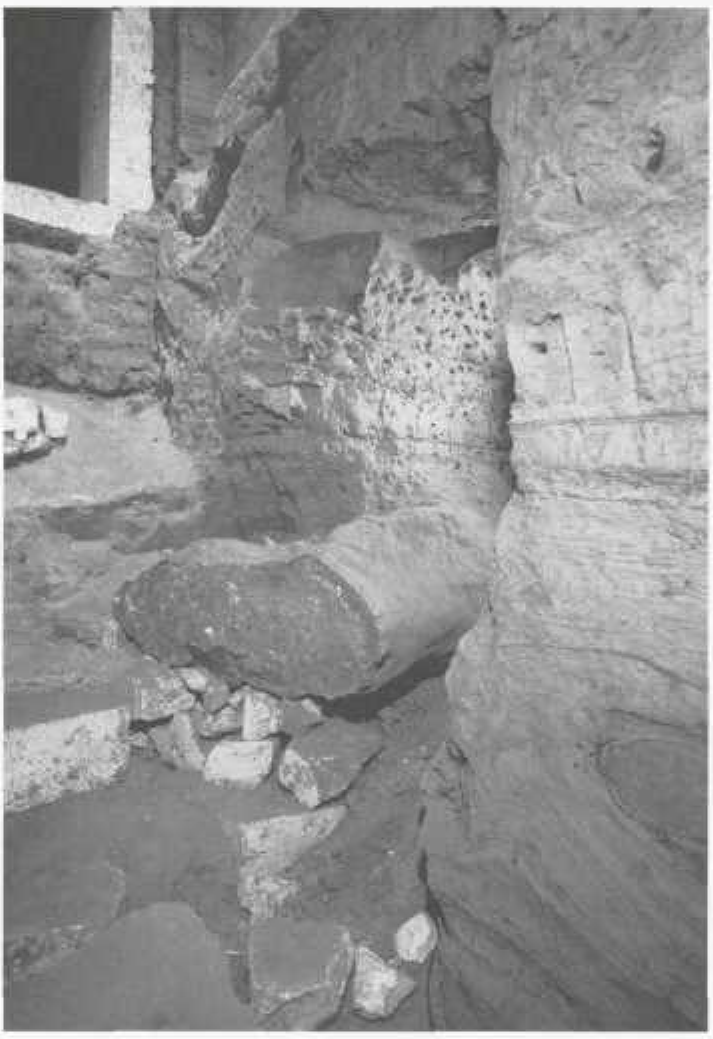
Pl. 80a. Tomb 1. Upper chamber looking down into the entrance passage, facing north. Photo G.D. (DH 90:41).



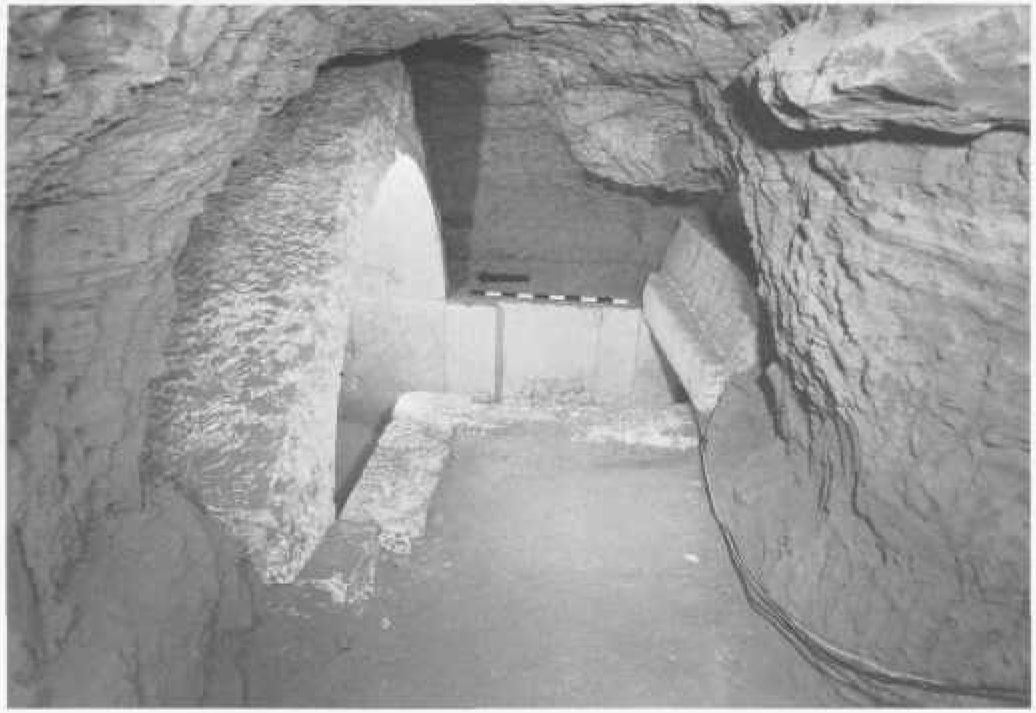
Pl. 80b. Tomb 1. Entrance passage with the canopic shrine (left) and entrance gate (above), facing south. Photo G.D. (DH 90:259).



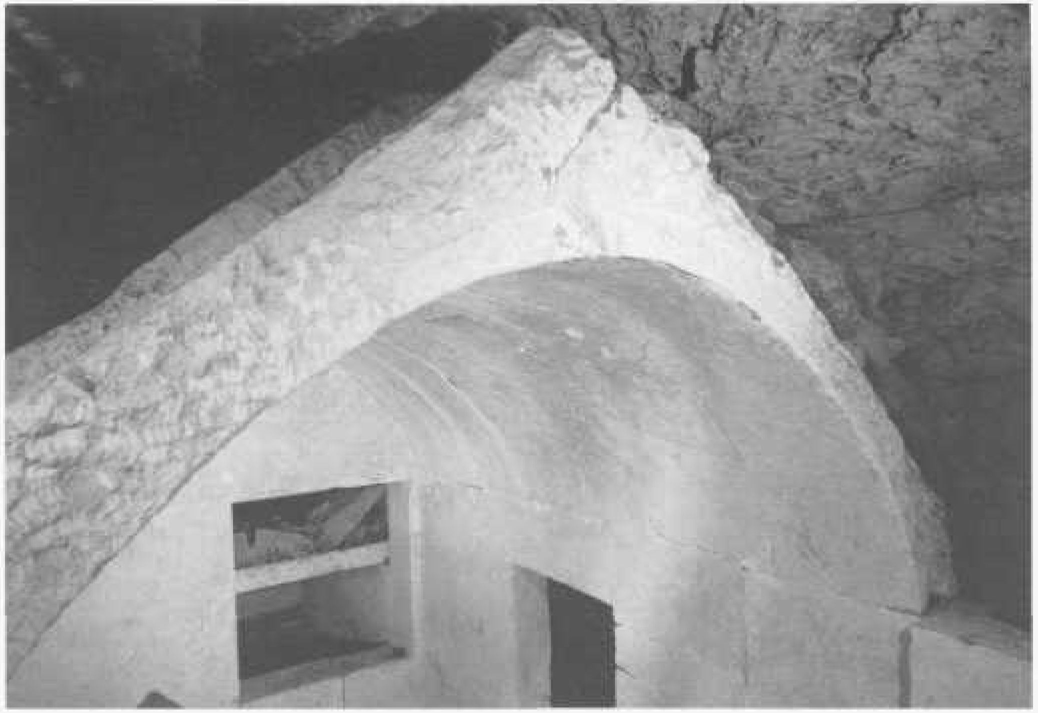
Pl. 80c. Tomb 1. The canopic shrine, facing southeast. Photo G.D. (DH 90:255).



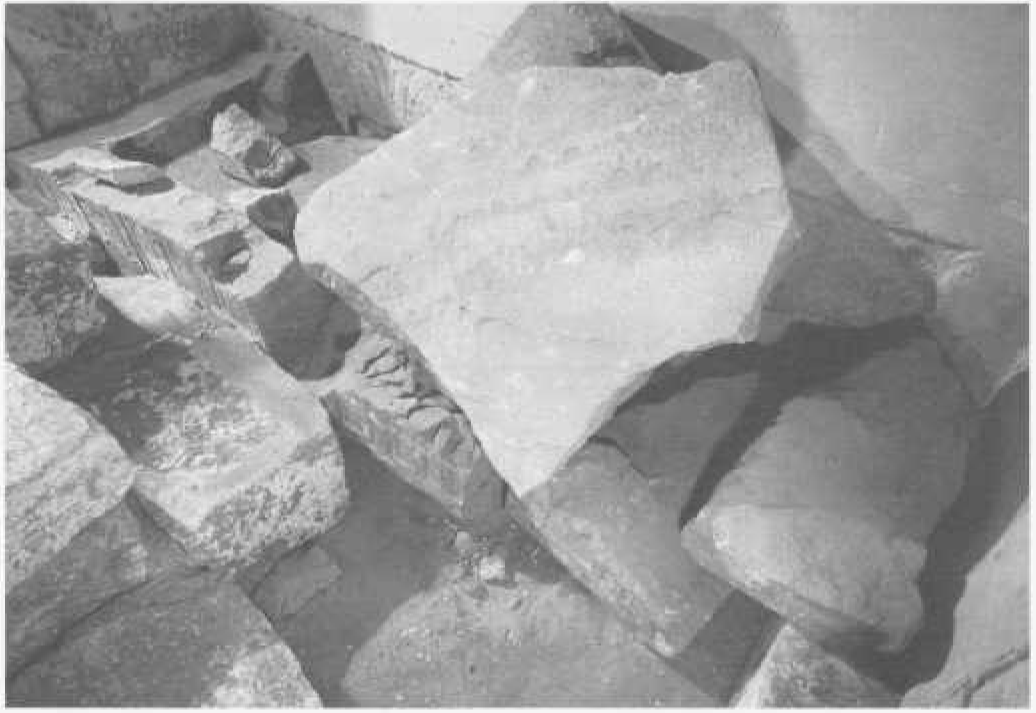
Pl. 80d. Tomb 1. Unfinished side chamber north of the entrance passage, obstructed by a sandstone inclusion propped up by stone cutters, facing southwest. Photo G.D. (DH 90:44).



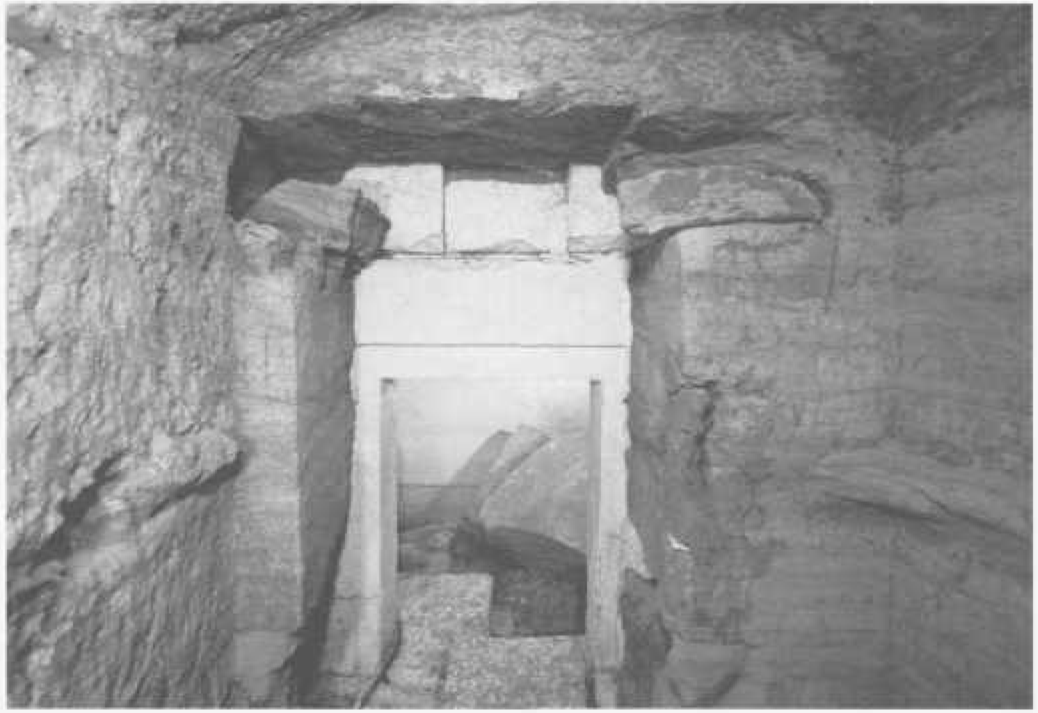
Pl. 81a. Tomb 1. Secondary opening in the roof of the entrance to the crypt at the end of the curved tunnel, facing east. Photo G.D. (DH 90:49).



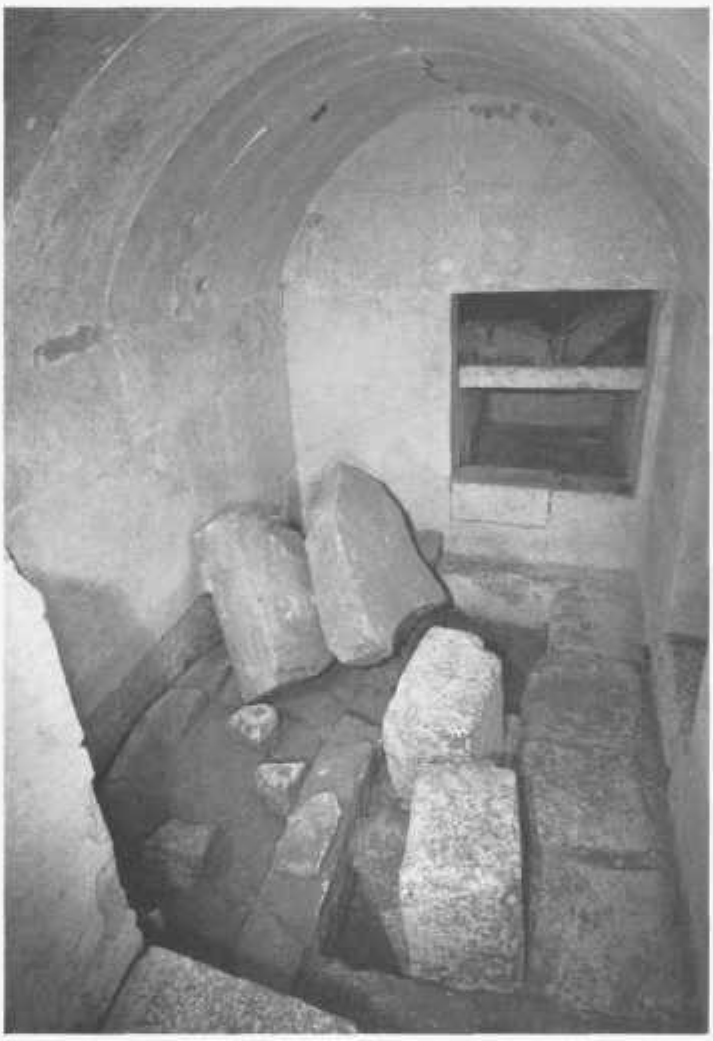
Pl. 81b. Tomb 1. Vault cut into the underside of the saddle roof of the crypt, facing northeast. Note the joined roof slabs at the top. Photo G.D. (DH 90:50).



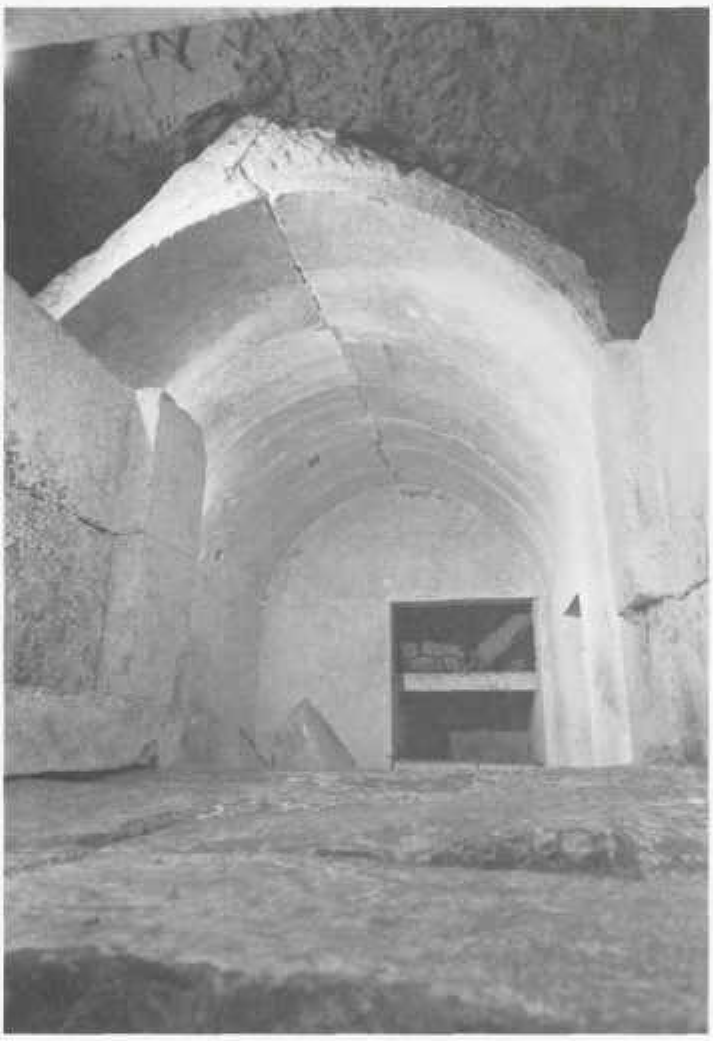
Pl. 81c. Tomb 1. The destroyed quartzite sarcophagus in the crypt, facing southwest. Photo G.D. (DH 90:55).



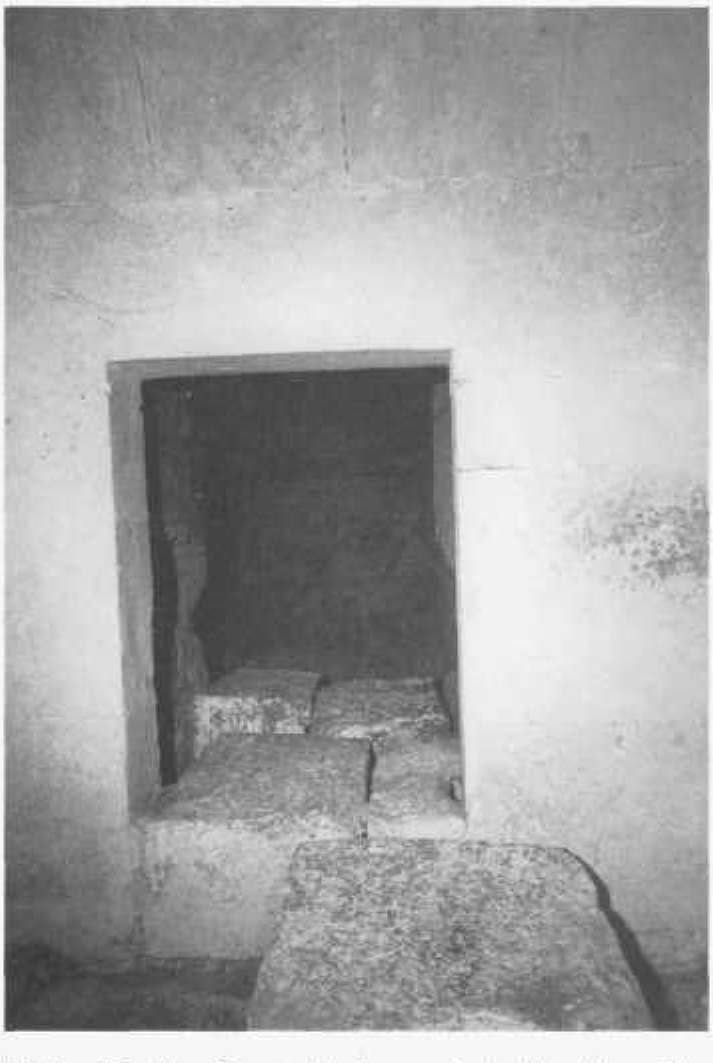
Pl. 81d. Tomb 1. The doorway in the east chamber, seen from the inside, facing west. Note the rear of the saddle stones above the lintel. Photo G.D. (DH 90:60).



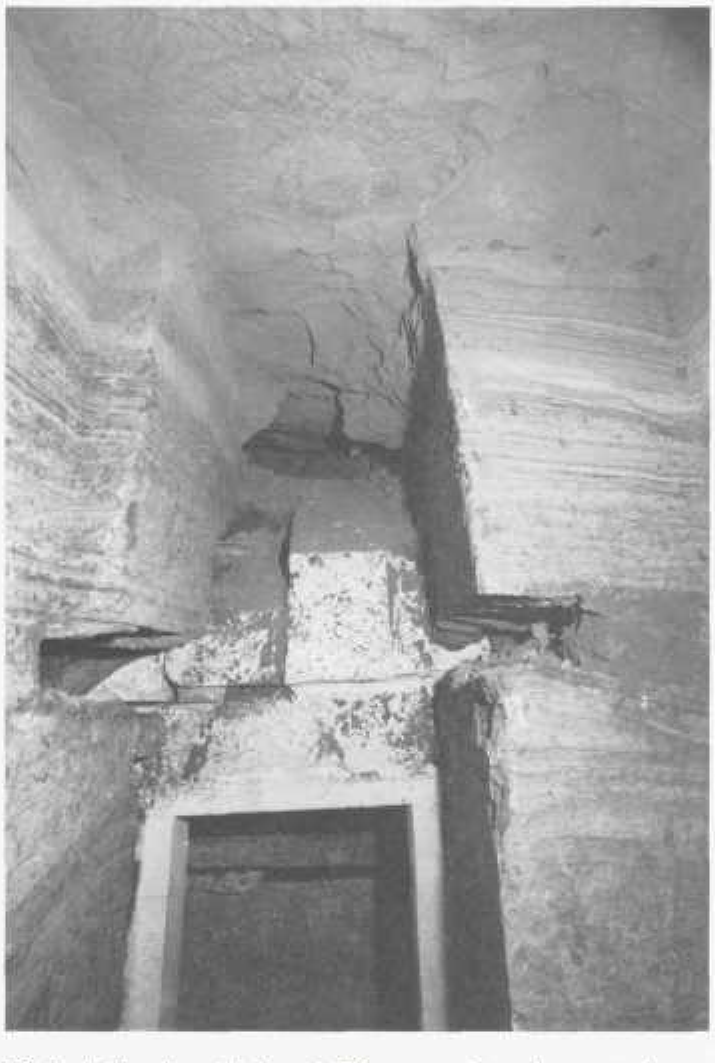
Pl. 82a. Tomb 1. Crypt with destroyed quartzite sarcophagus, facing north. Photo G.D. (DH 90:53).



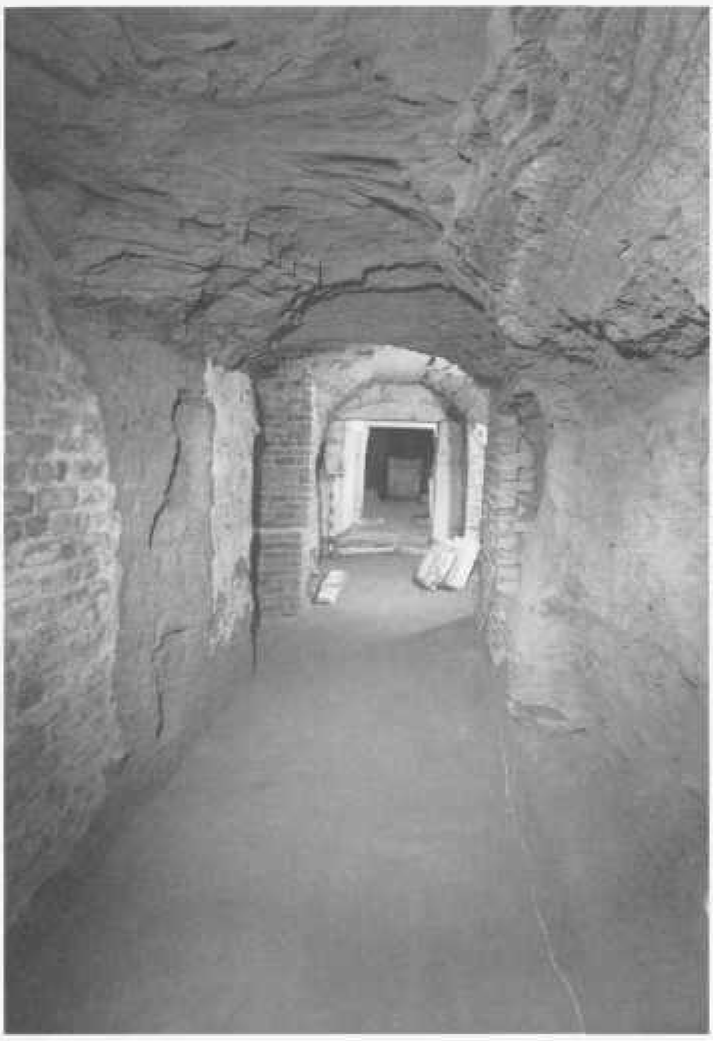
Pl. 82b. Tomb 1. Crypt with vault, facing north. The remaining blocking of the doorway is in the foreground. Photo G.D. (DH 90:47).



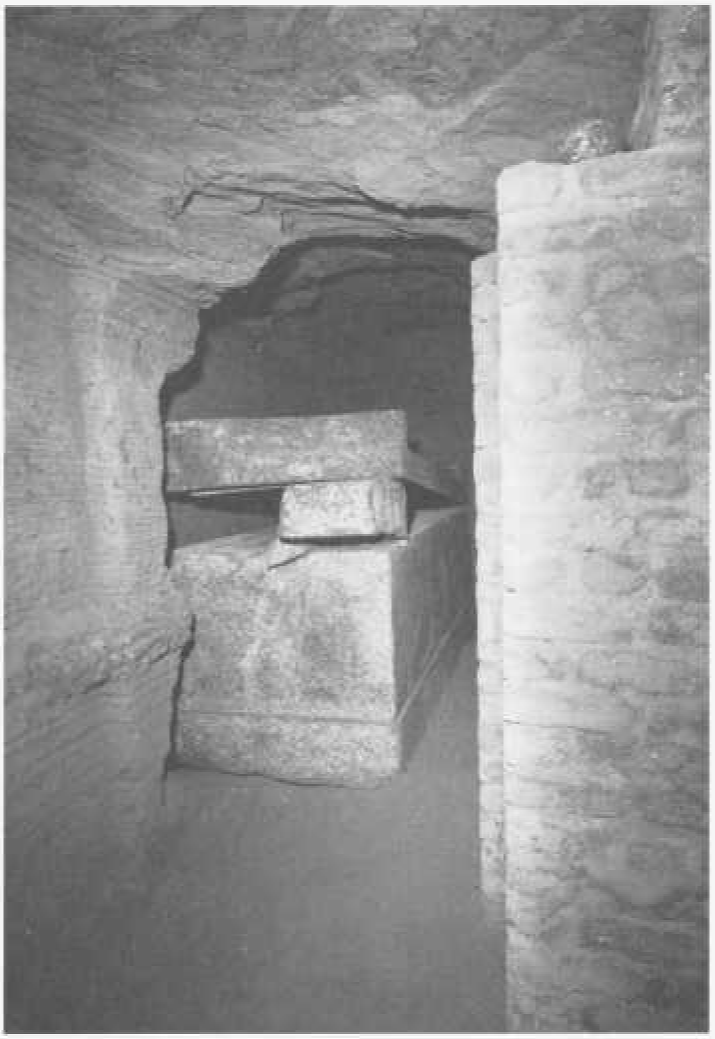
Pl. 82c. Tomb 1. Crypt with the remaining blocking of the doorway, facing east. Photo G.D. (DH 90:61).



Pl. 82d. Tomb 3 (Itakayet). Doorway into the east chamber, seen from the inside, facing west. Note the rear of the saddle stones above the lintel. Photo G.D. (DH 90:15).

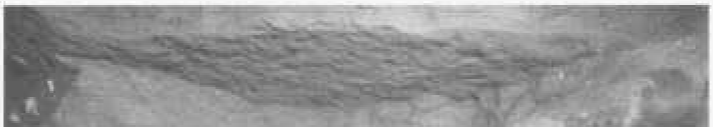


Pl. 83a. The west corridor of the subsidiary queens' gallery, facing east. Photo G.D. (DH 90:108).

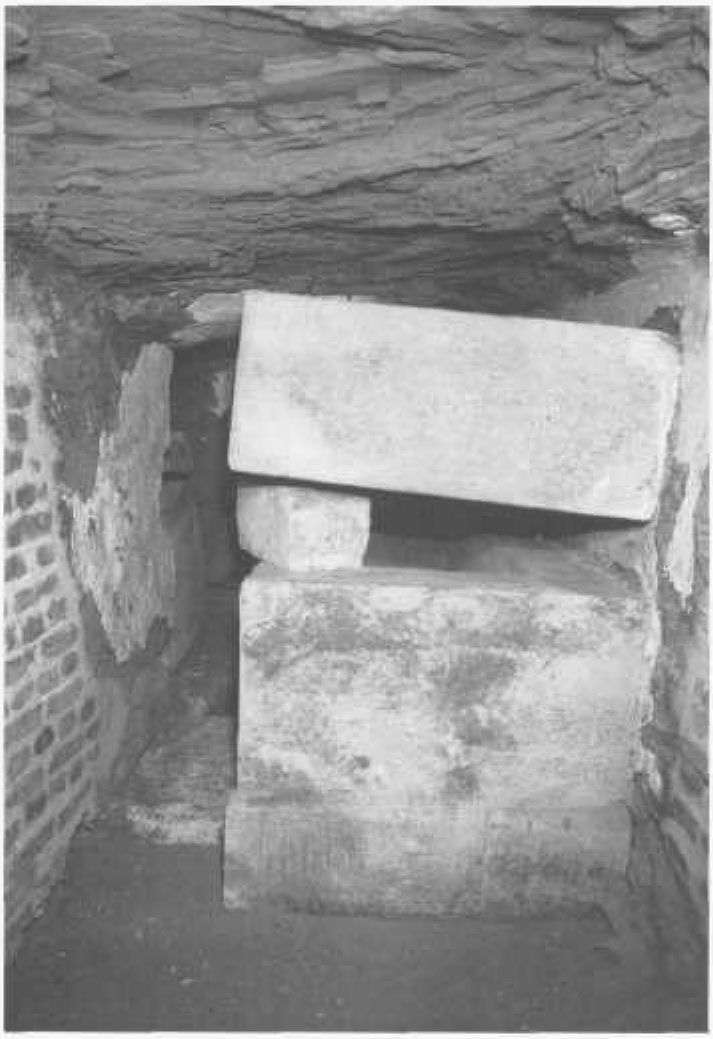


Pl. 83b. Tomb 5. Chamber and granite sarcophagus, facing north. The brickwork is modern. Photo G.D. (DH 90:109).

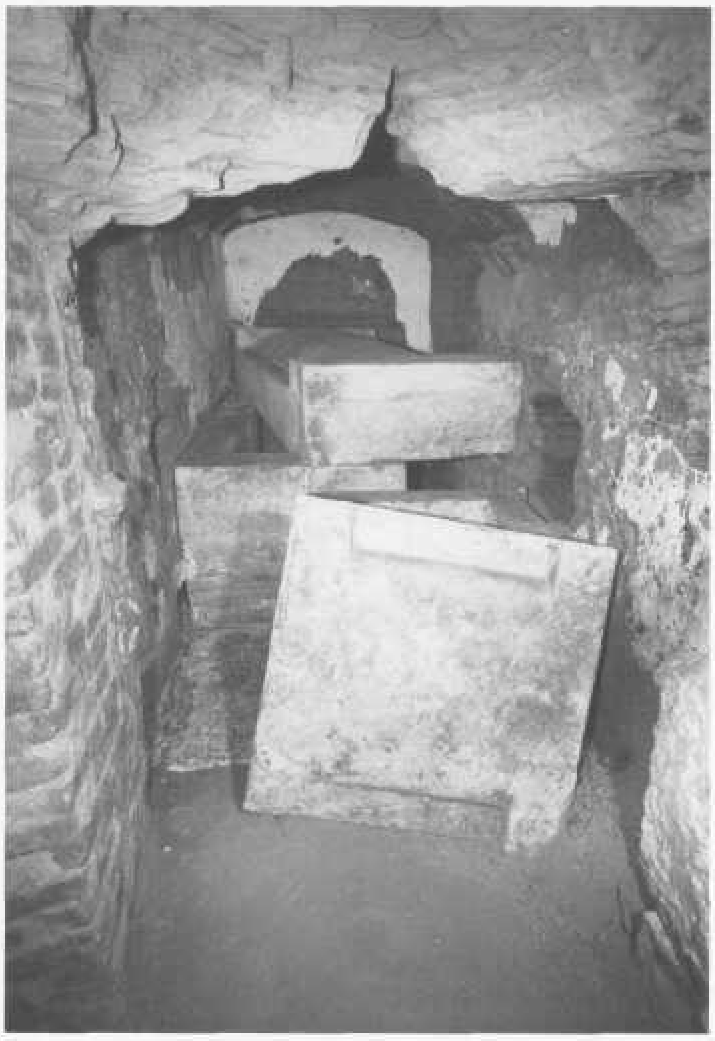
Pl. 83c. Tomb 6 (Mereret?). Chamber, sarcophagus, and canopic chest, facing north. The brickwork is modern. Photo G.D. (DH 90:104).



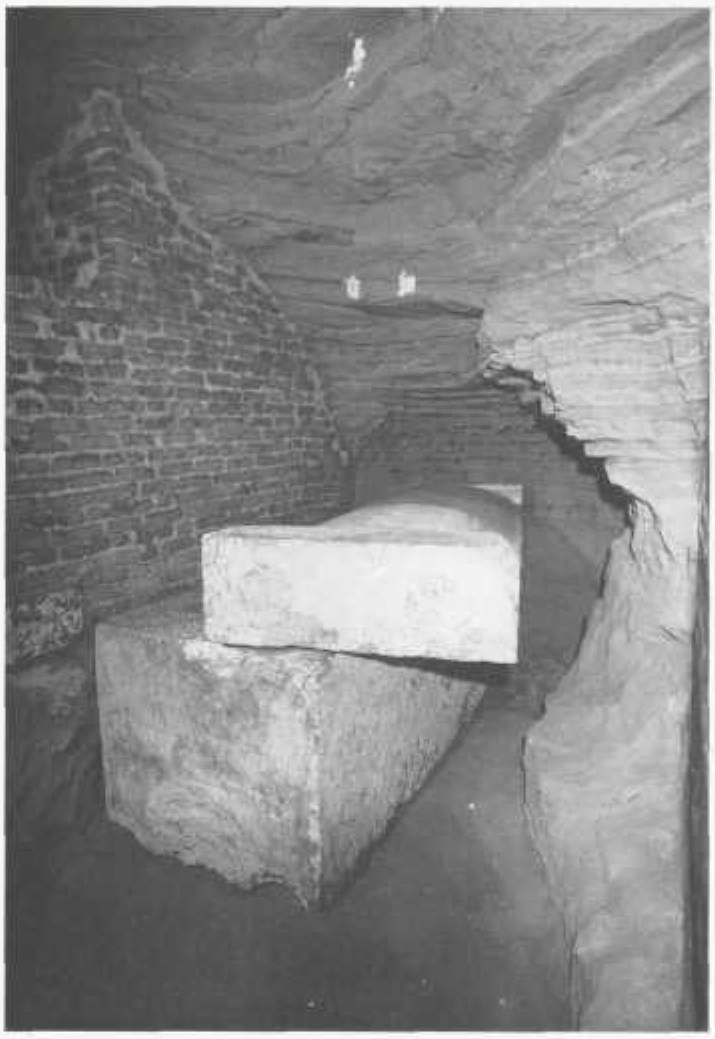
Pl. 83d. Tomb 6 (Mereret?). Canopic chest, facing north-east. The wall plaster is ancient; the brickwork is modern. Photo G.D. (DH 90:105).



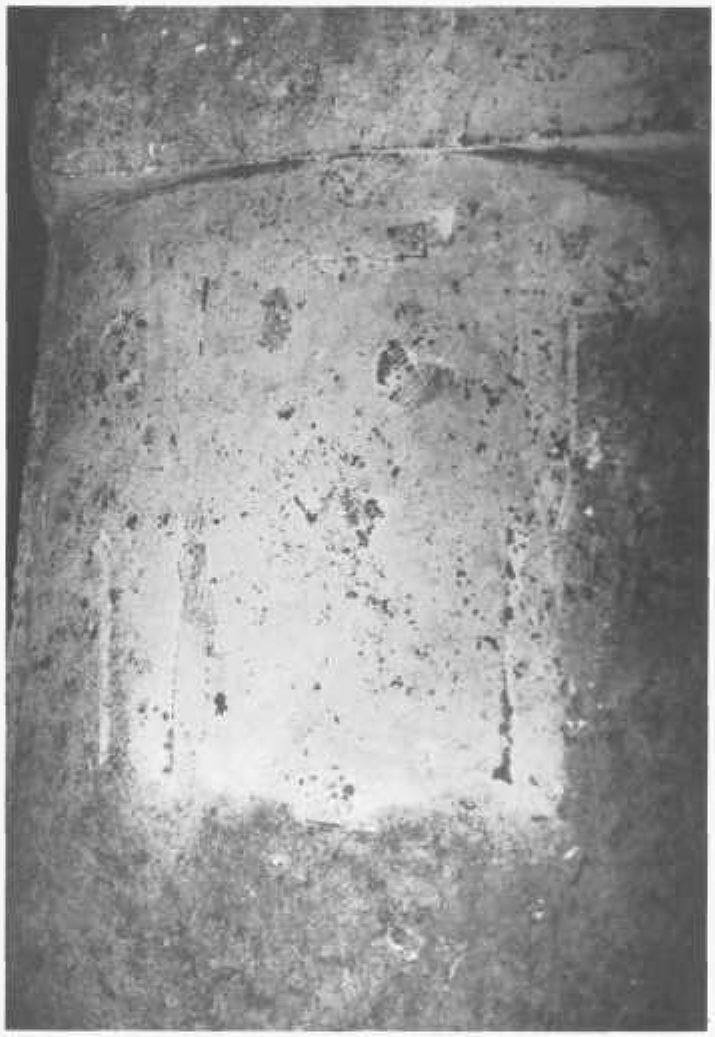
Pl. 84a. Tomb 7 (Senet-senebetes). Chamber and inscribed sarcophagus, facing south. Photo G.D. (DH 90:100).



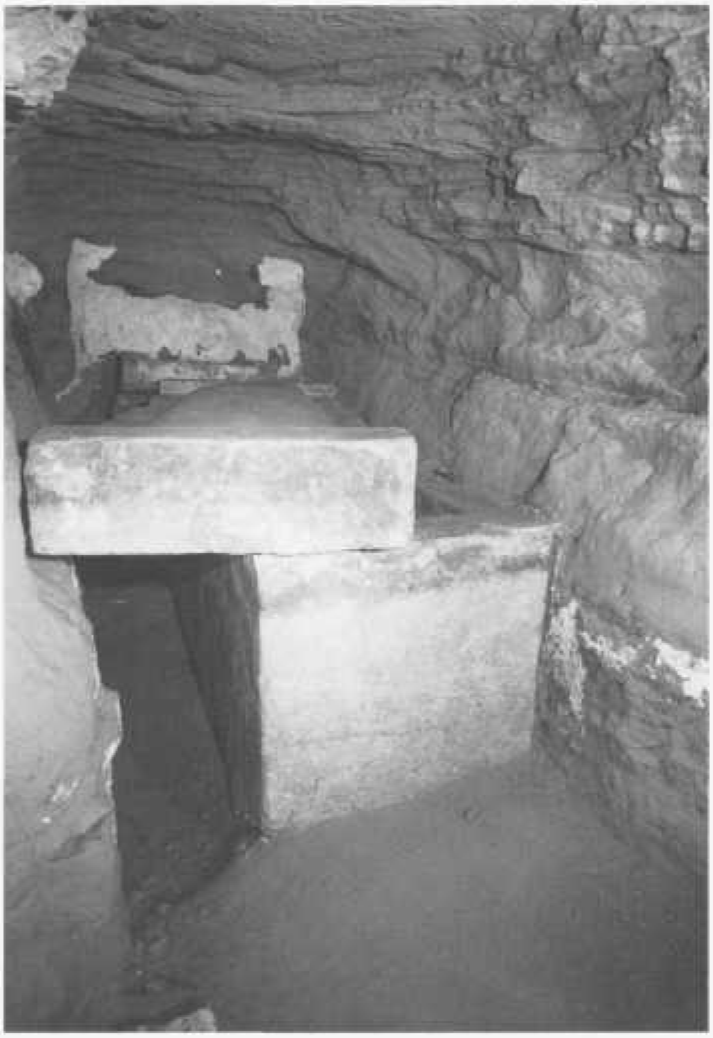
Pl. 84b. Tomb 8 (Menet). Canopic chest and inscribed sarcophagus, facing north. Photo G.D. (DH 90:102).



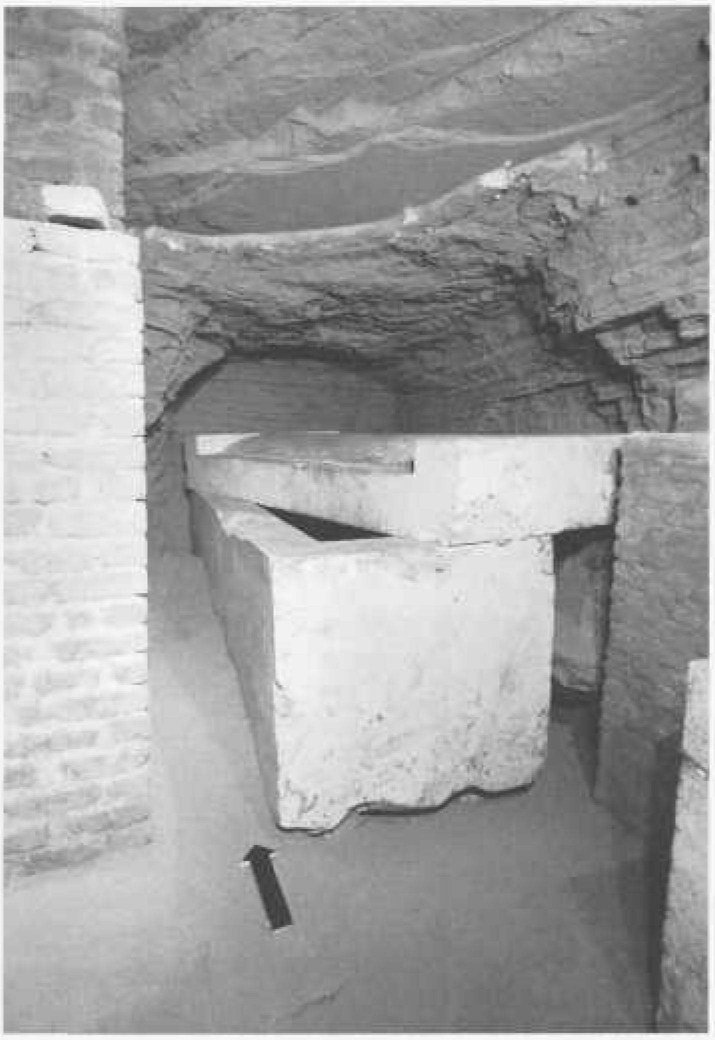
Pl. 84c. Tomb 9 (Sithathor?). Chamber and sarcophagus, facing north. The brick wall and plaster are modern. Photo G.D. (DH 90:82).



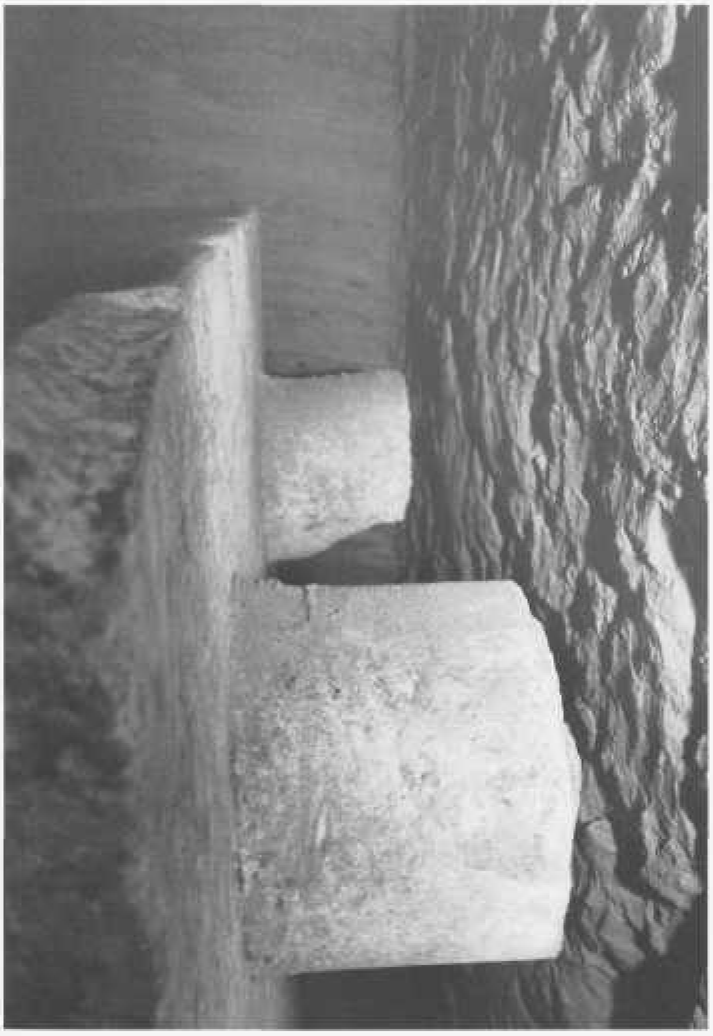
Pl. 84d. Tomb 9 (Sithathor?). Mark on top of the sarcophagus lid. Photo G.D. (DH 90:296).



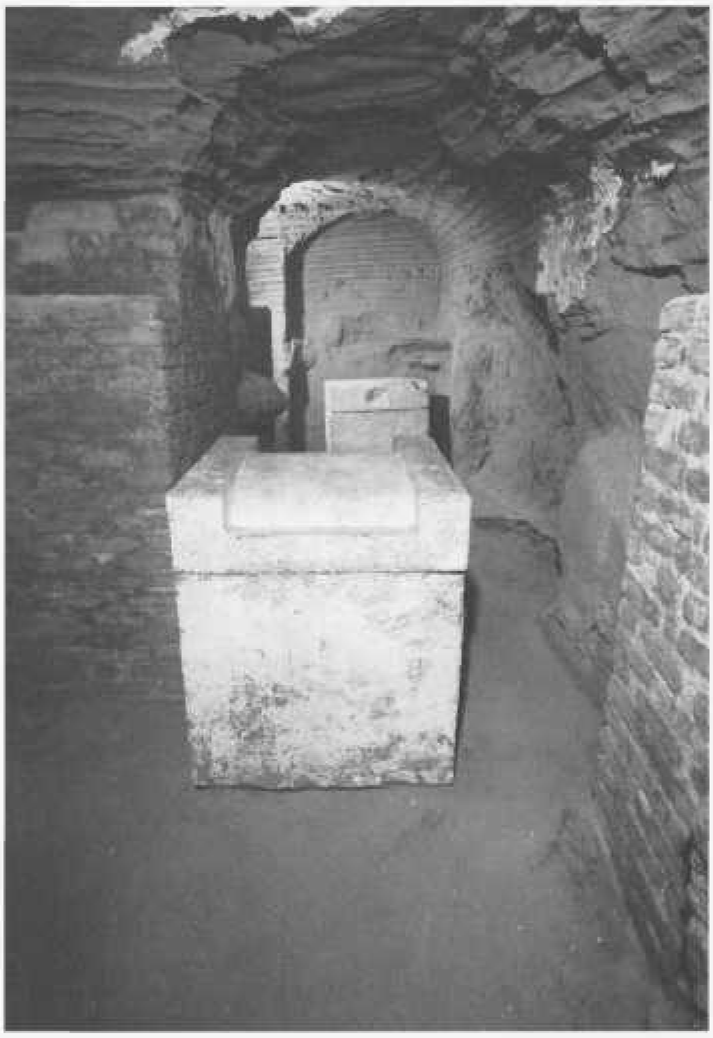
Pl. 85a. Tomb 10. Chamber and sarcophagus, facing south. Photo G.D. (DH 90:84).



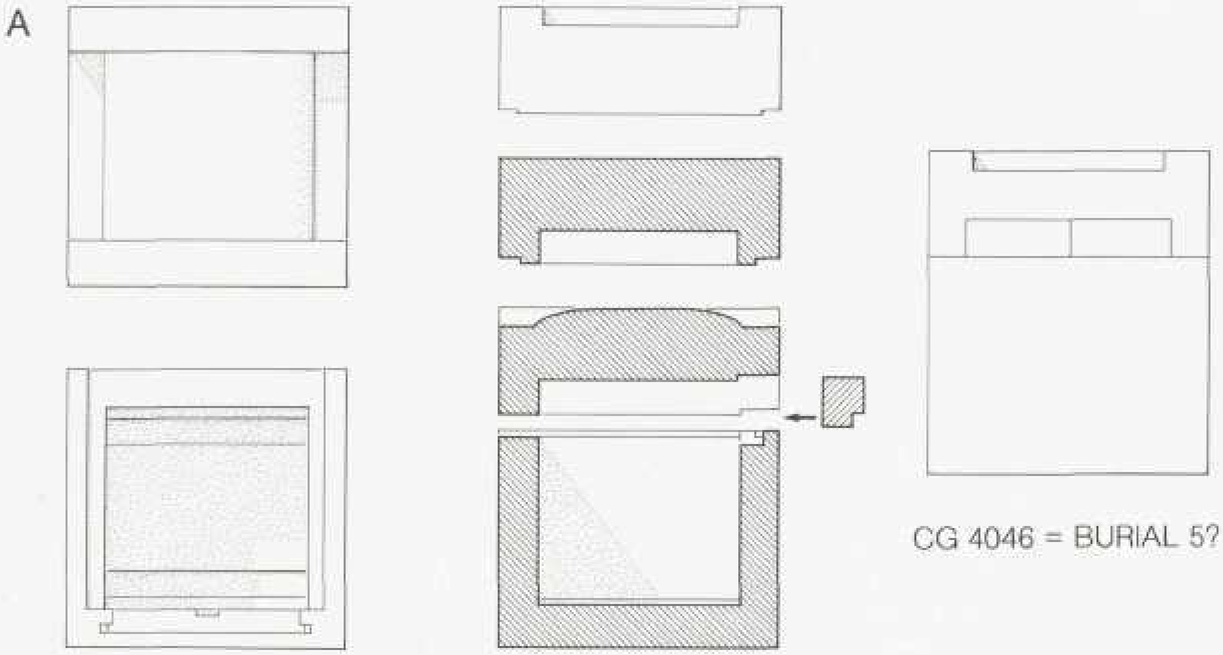
Pl. 85b. Tomb 11. Chamber and sarcophagus, facing north. The brickwork is modern. Photo G.D. (DH 90:81).



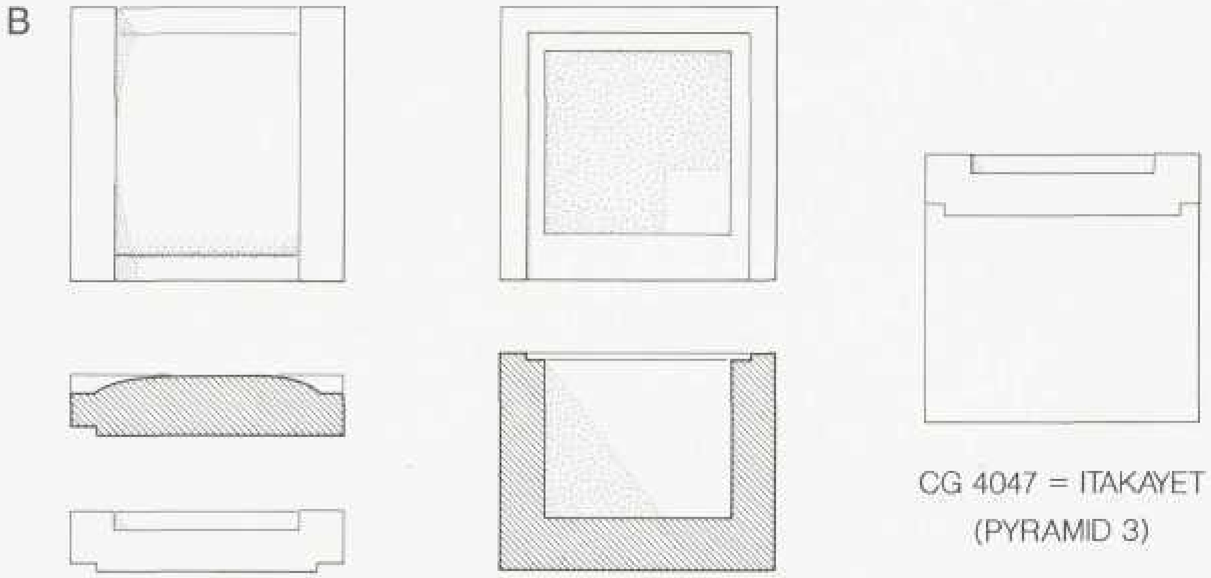
Pl. 85c. Tomb 12. Handles at the north end of the sarcophagus lid. Photo G.D. (DH 90:297).



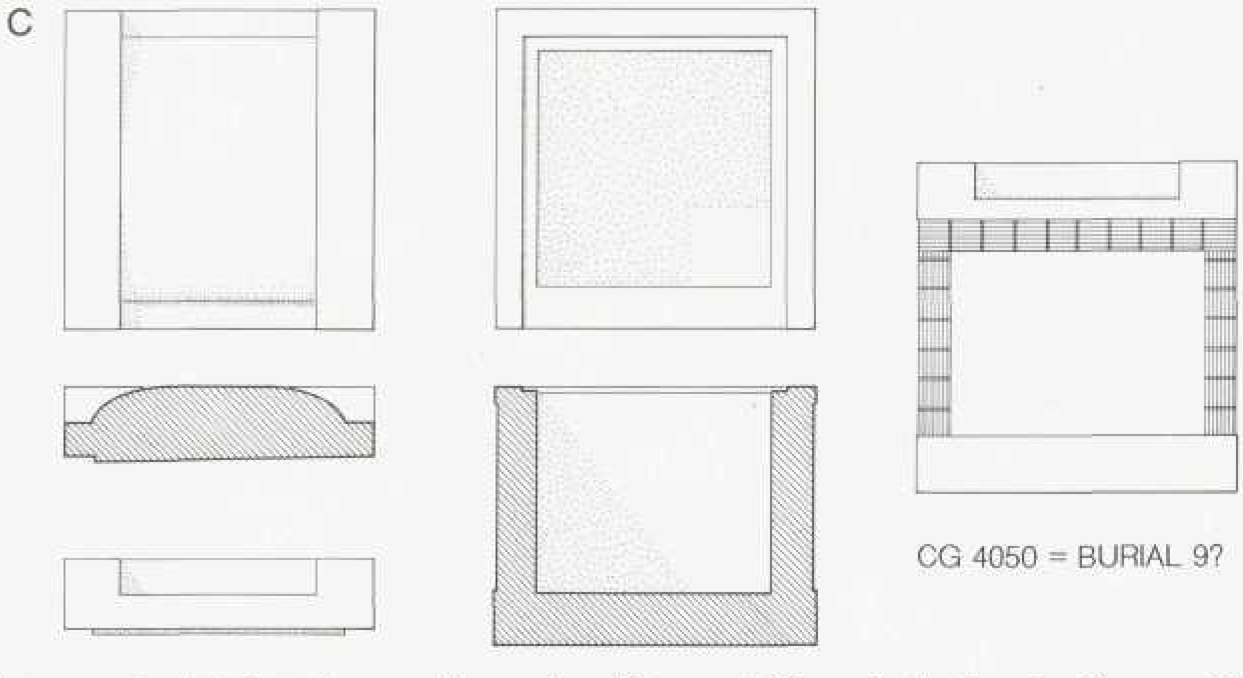
Pl. 85d. East end of the queens' subsidiary gallery with the canopic chests from tombs 11 and 12. Photo G.D. (DH 90:80).



CG 4046 = BURIAL 5?

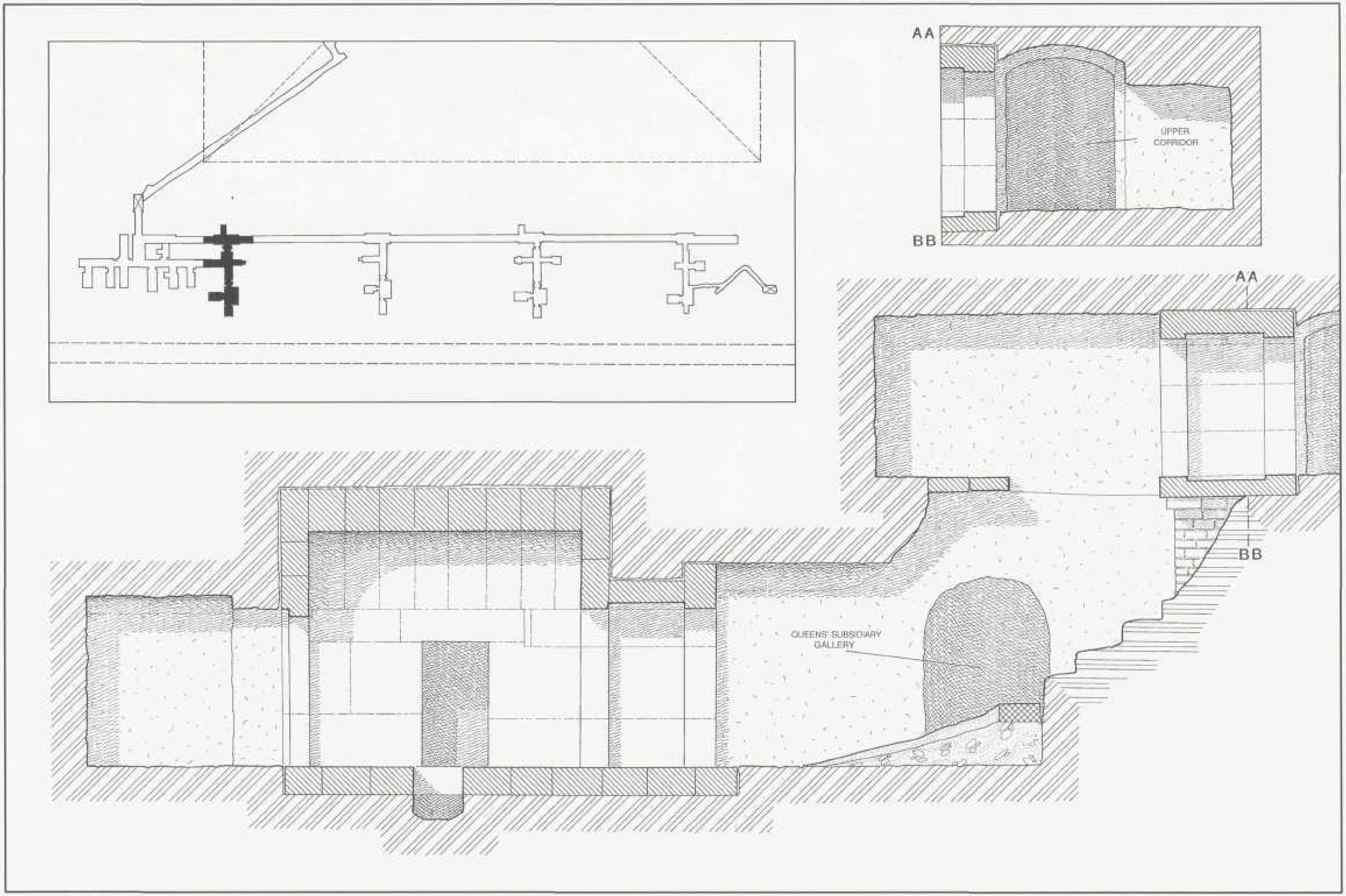


CG 4047 = ITAKAYET
(PYRAMID 3)

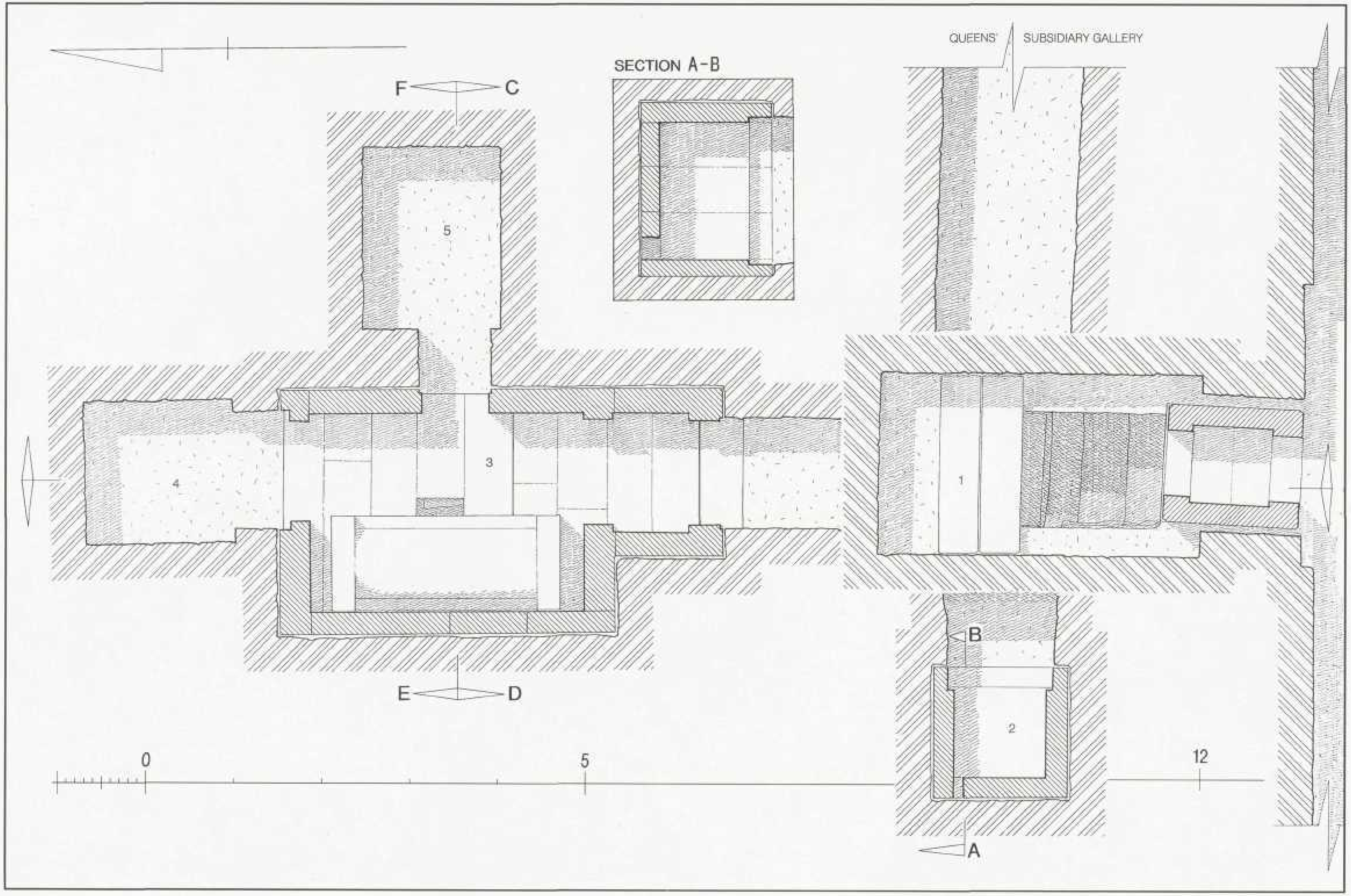


CG 4050 = BURIAL 9?

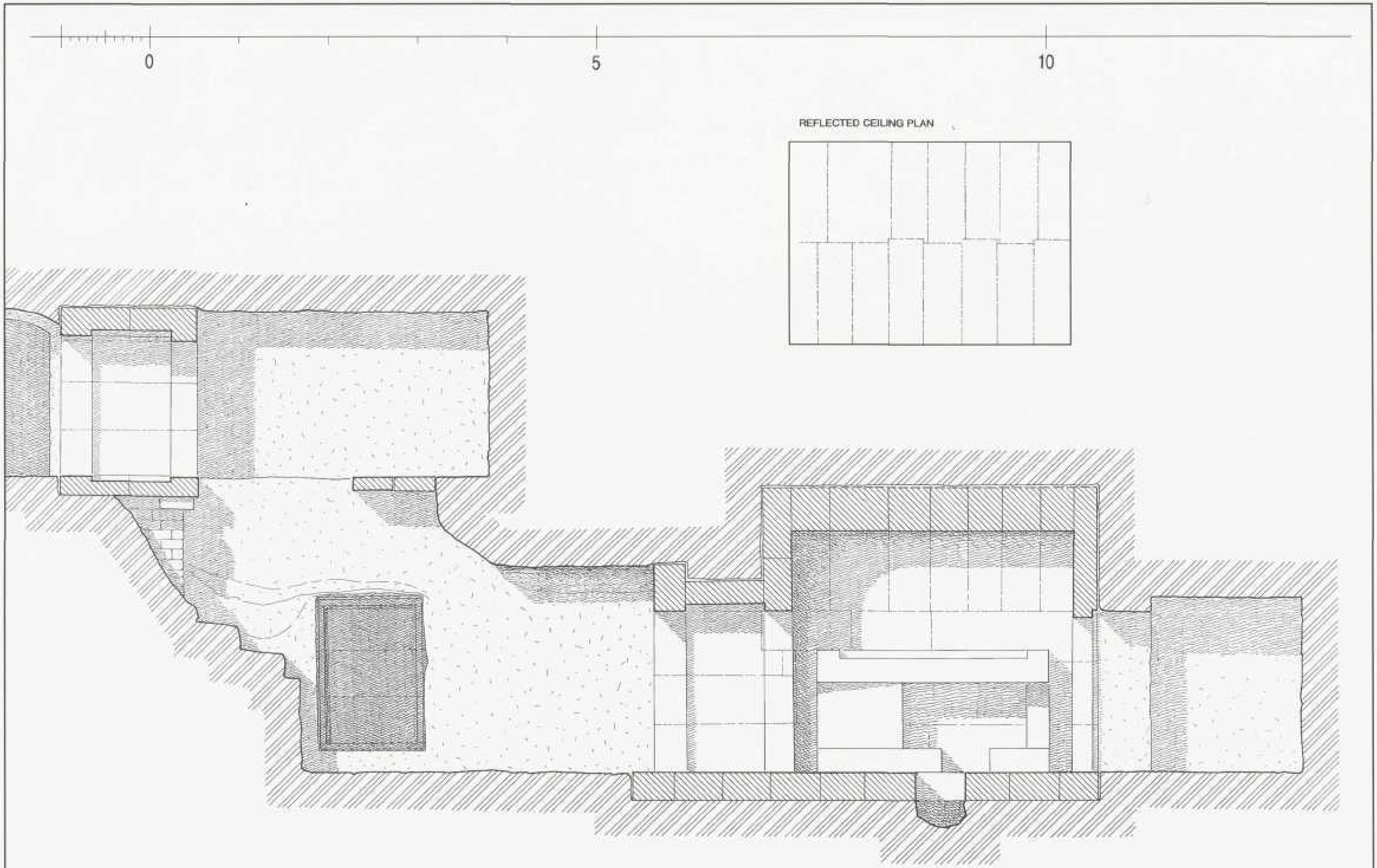
Pl. 86. Three canopic chests from the pyramid complex of Senwosret III now in the Egyptian Museum, Cairo. *A)* Granite canopic chest probably from tomb 5 in the queens' subsidiary gallery, CG 4046. *B)* Granite canopic chest from tomb of pyramid 3 (Itakayet), CG 4047. *C)* Limestone canopic chest perhaps from tomb 9 in the queens' subsidiary gallery, CG 4050. Scale 1:20. Drawings D.A. after Reisner, *Canopics*, pp. 25–33, pls. 79–80, and Schwab, "Sarkophage," cat. nos. 56A, 60A, 64A.



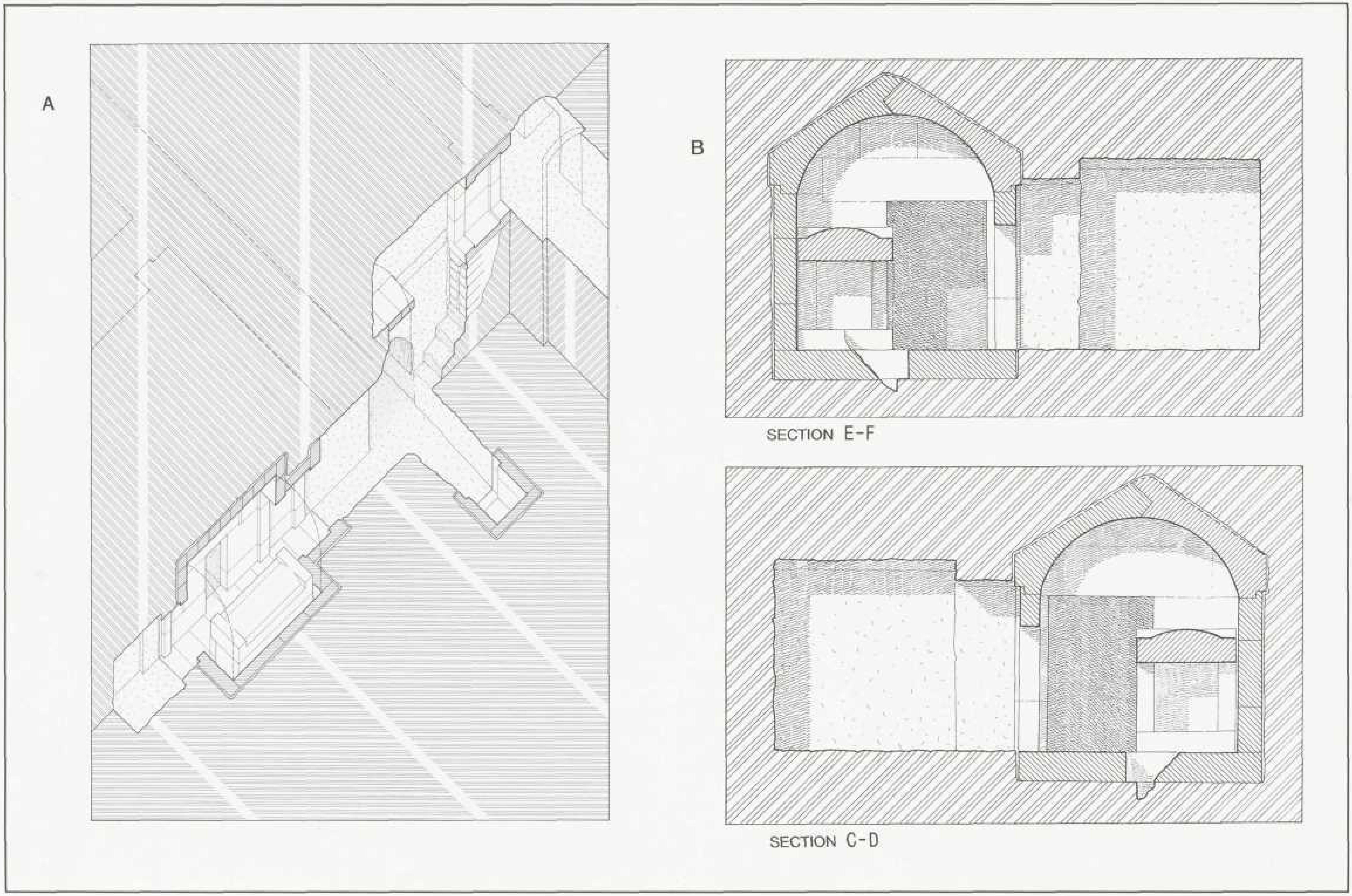
Pl. 87. Tomb 4. Position sketch, a north-south longitudinal section, and a portion of the upper corridor (AA–BB). Scale 1:50. Drawings R.V. from drawings by R.T.



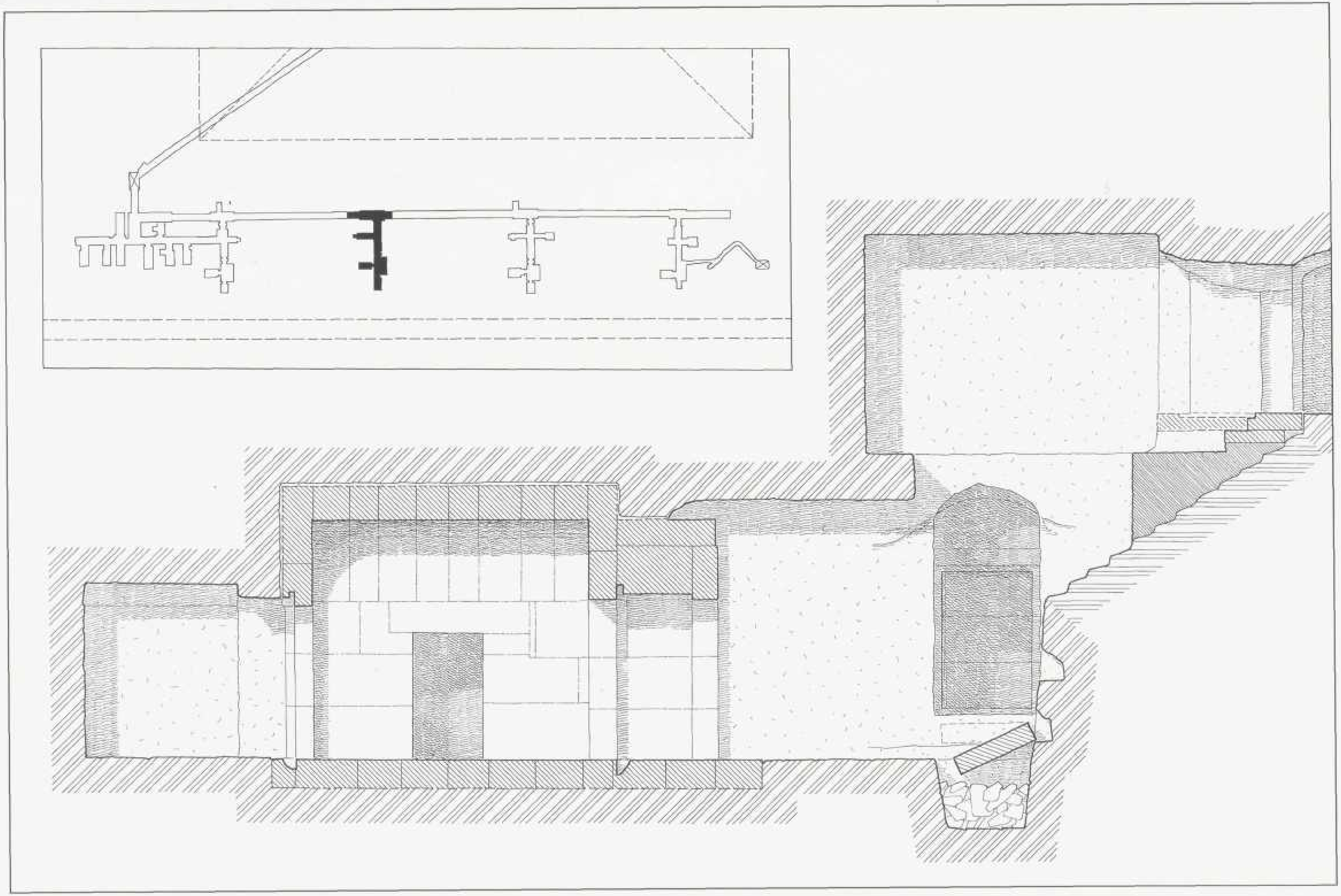
Pl. 88. Tomb 4. Plan, upper chamber [1], canopic niche [2], crypt [3], north chamber [4], and east chamber [5]. West-east section (A–B) through the canopic niche. Scale 1:50. Drawings R.V. from drawings by R.T.



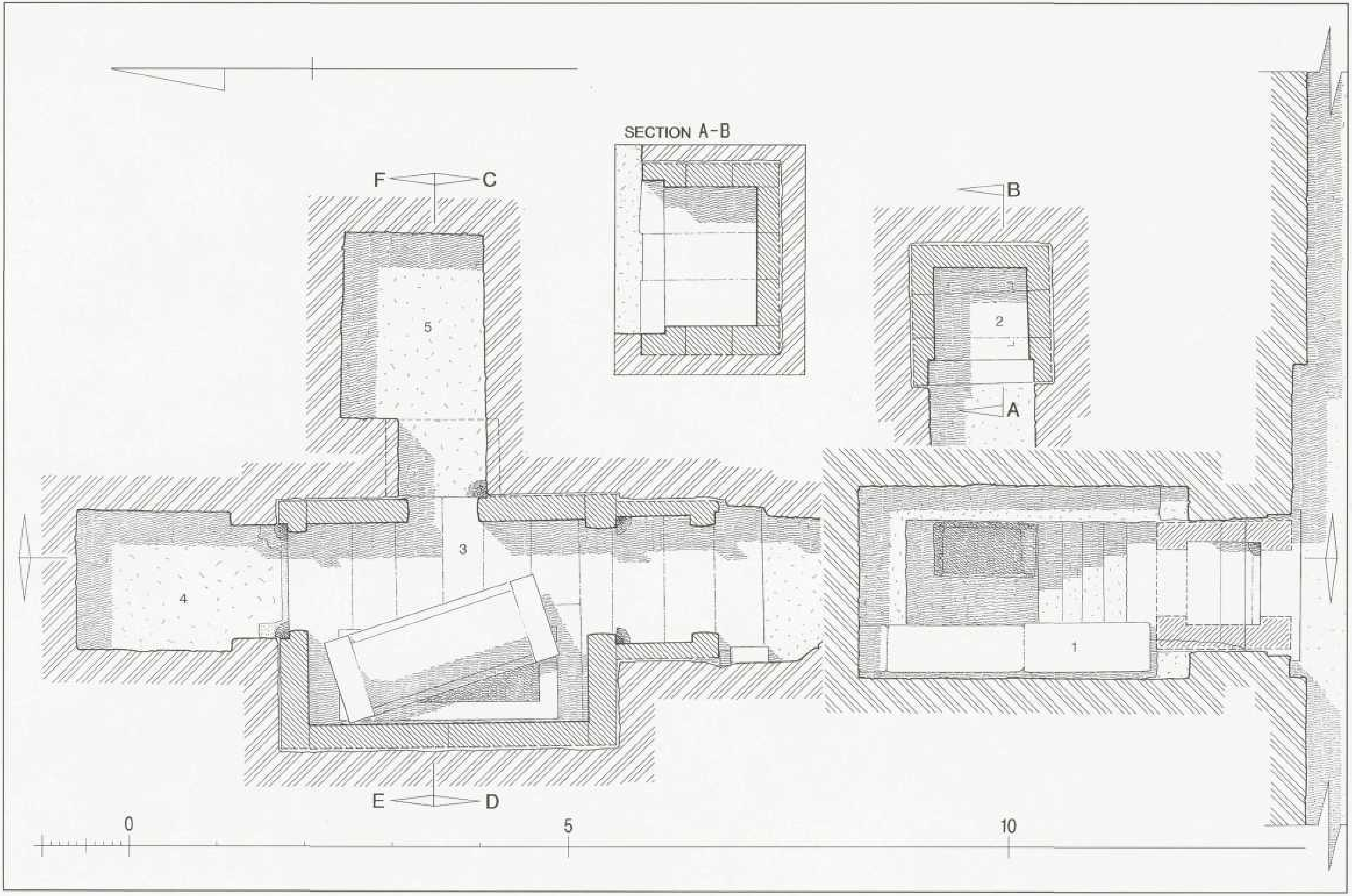
Pl. 89. Tomb 4. South-north longitudinal section and reflected ceiling plan of the crypt. Scale 1:50. Drawings R.V. from drawings by R.T.



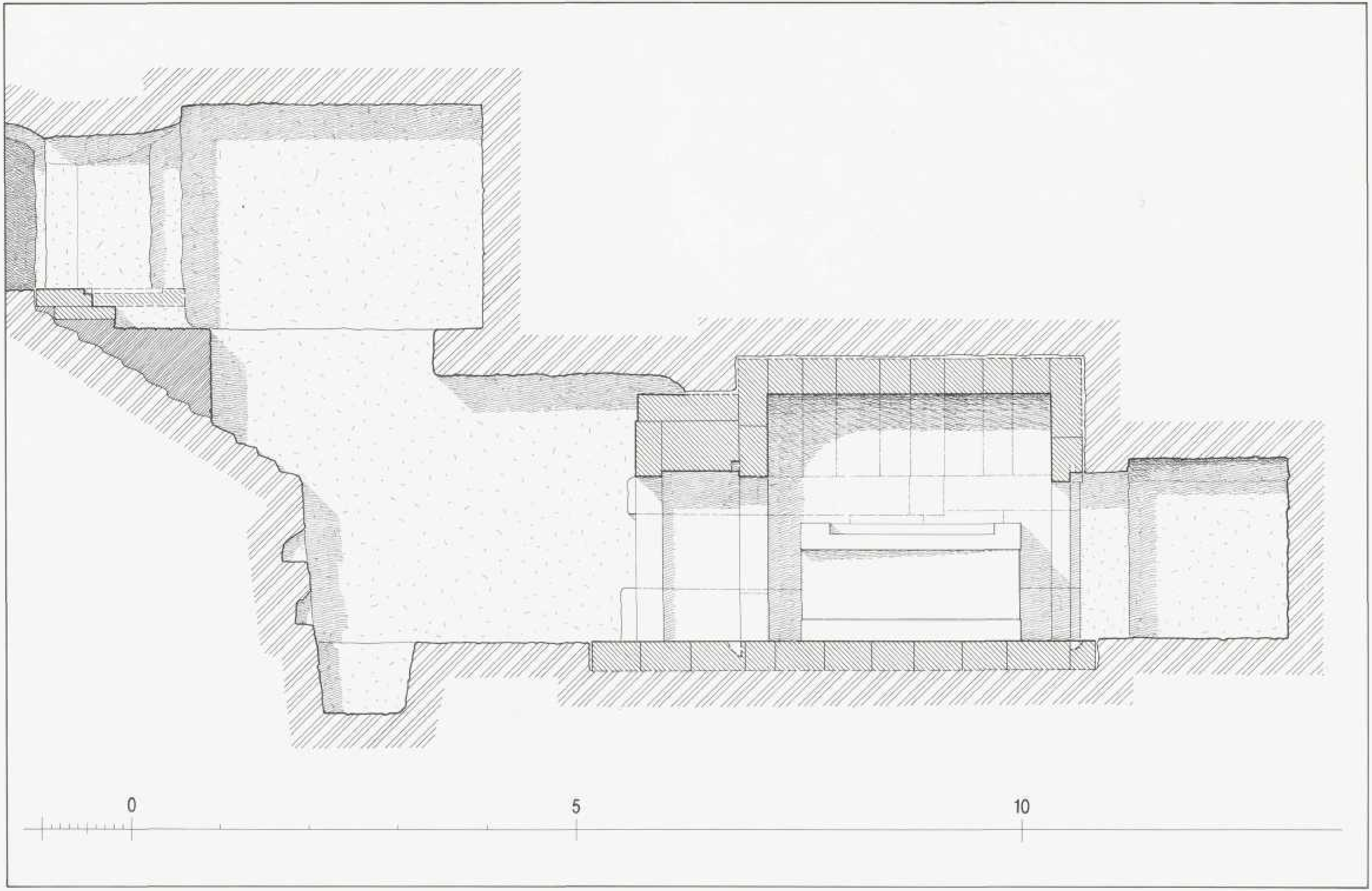
Pl. 90. Tomb 4. *A)* Axonometric view. No scale. *B)* Transverse sections C–D and E–F through the crypt and east chamber. Scale 1:50. Drawings R.V. from drawings by R.T.



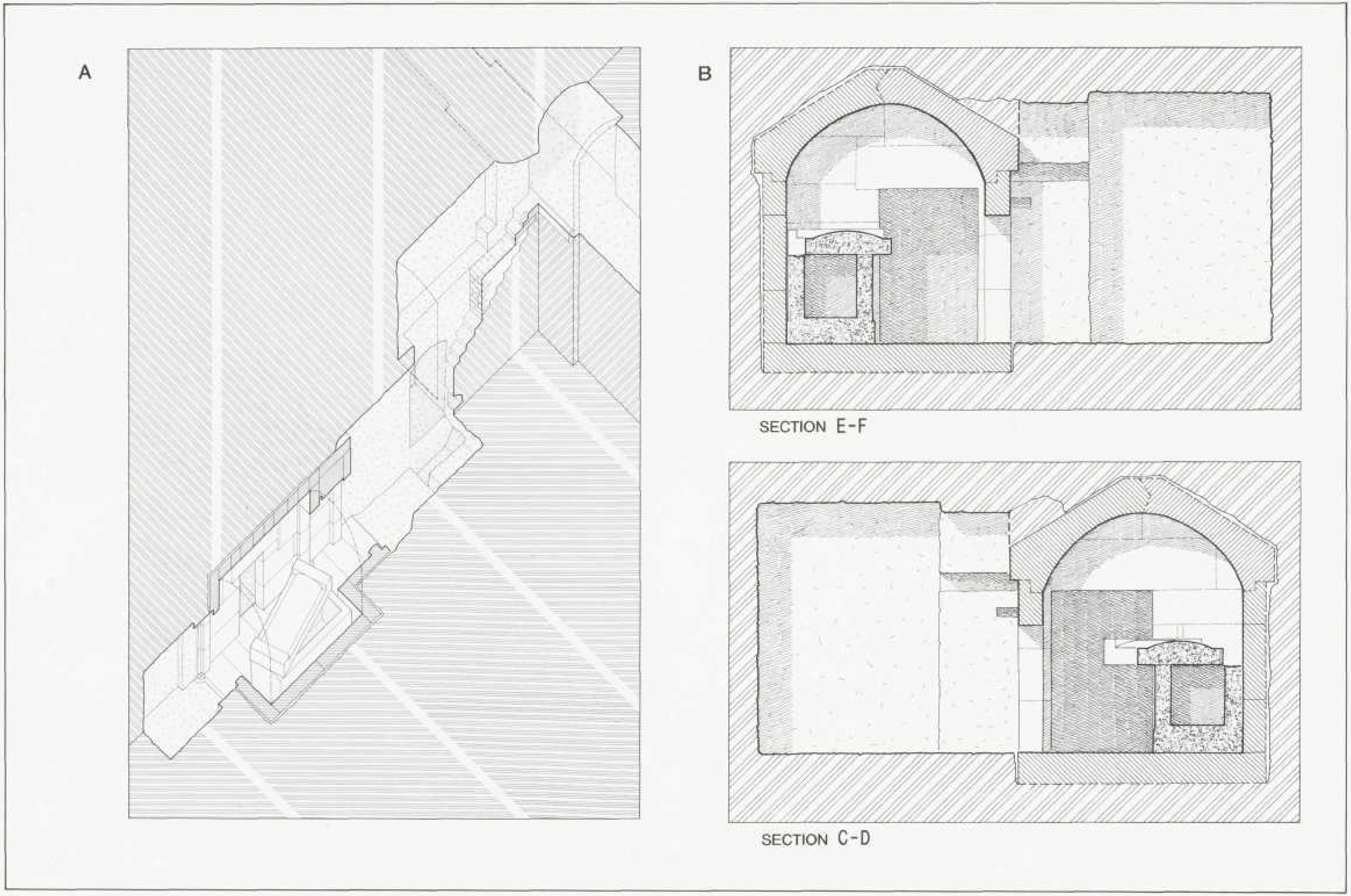
Pl. 91. Tomb 3 (Itakayet). Position sketch and north-south longitudinal section. Scale 1:50. Drawings R.V. from drawings by D.A.



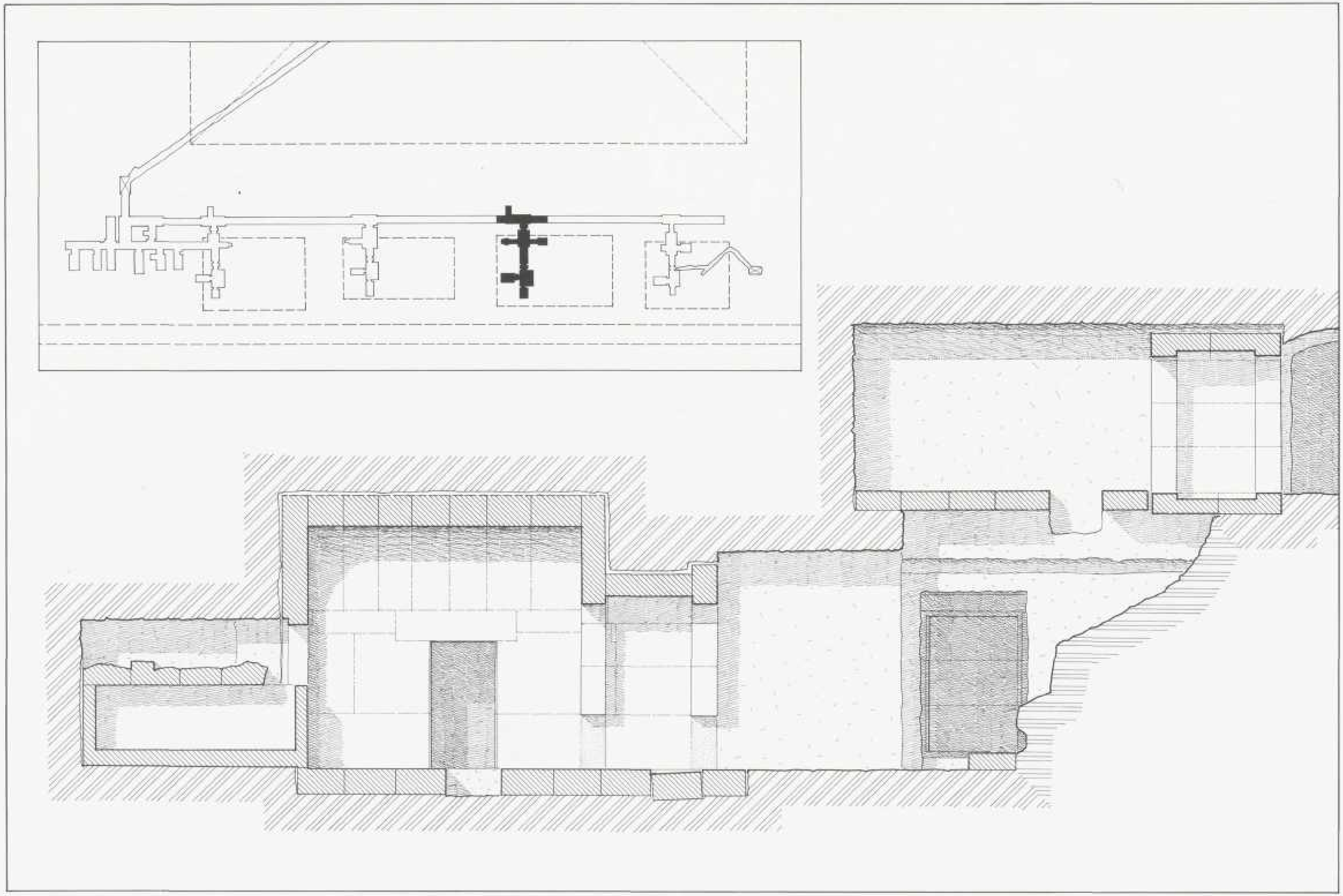
Pl. 92. Tomb 3 (Itakayet). Plan, upper chamber [1], canopic niche [2], crypt [3], north chamber [4], and east chamber [5]. West-east section (A–B) through the canopic niche. Scale 1:50. Drawings R.V. from drawings by D.A.



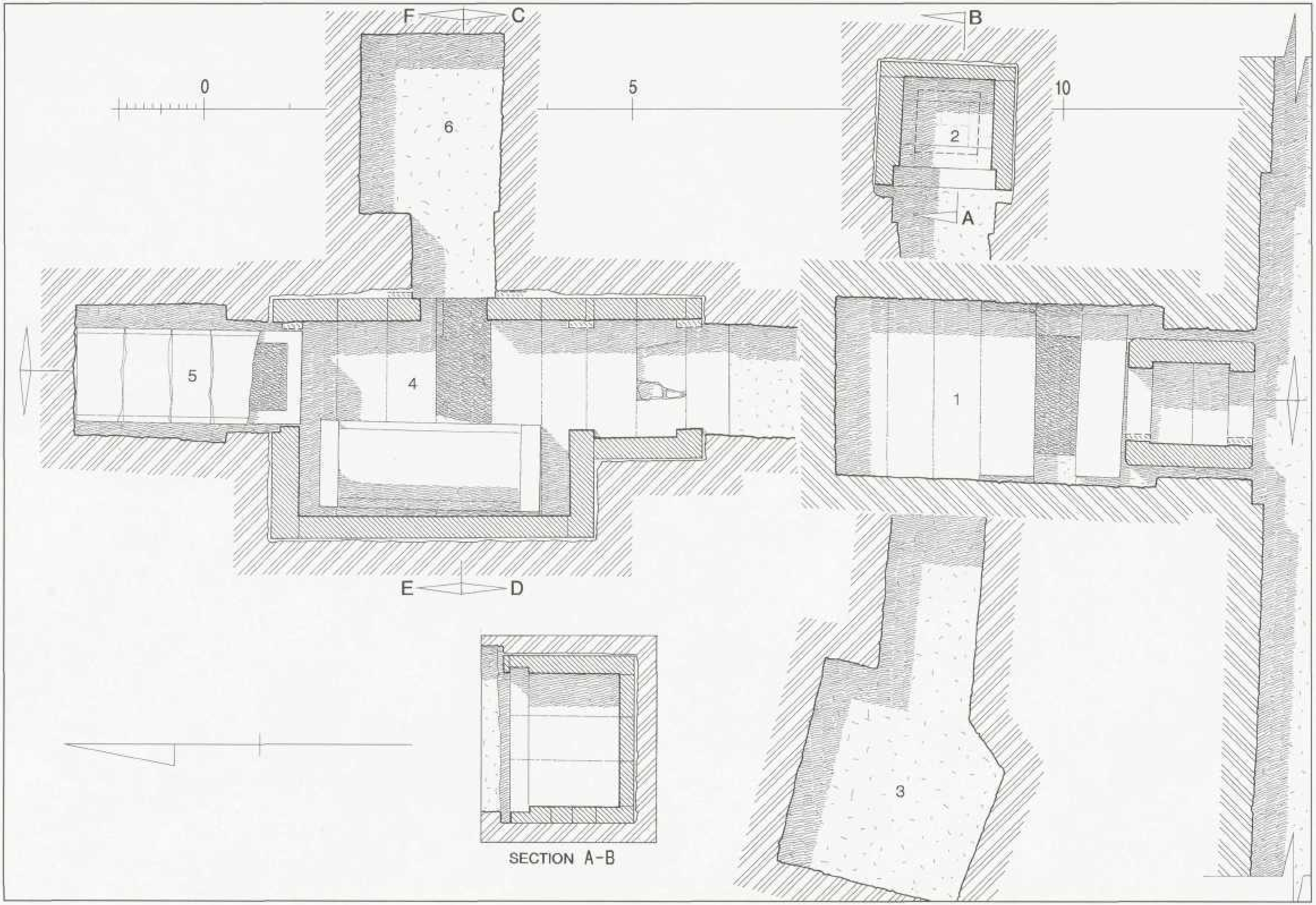
Pl. 93. Tomb 3 (Itakayet). South-north longitudinal section. Scale 1:50. Drawing R.V. from drawings by D.A.



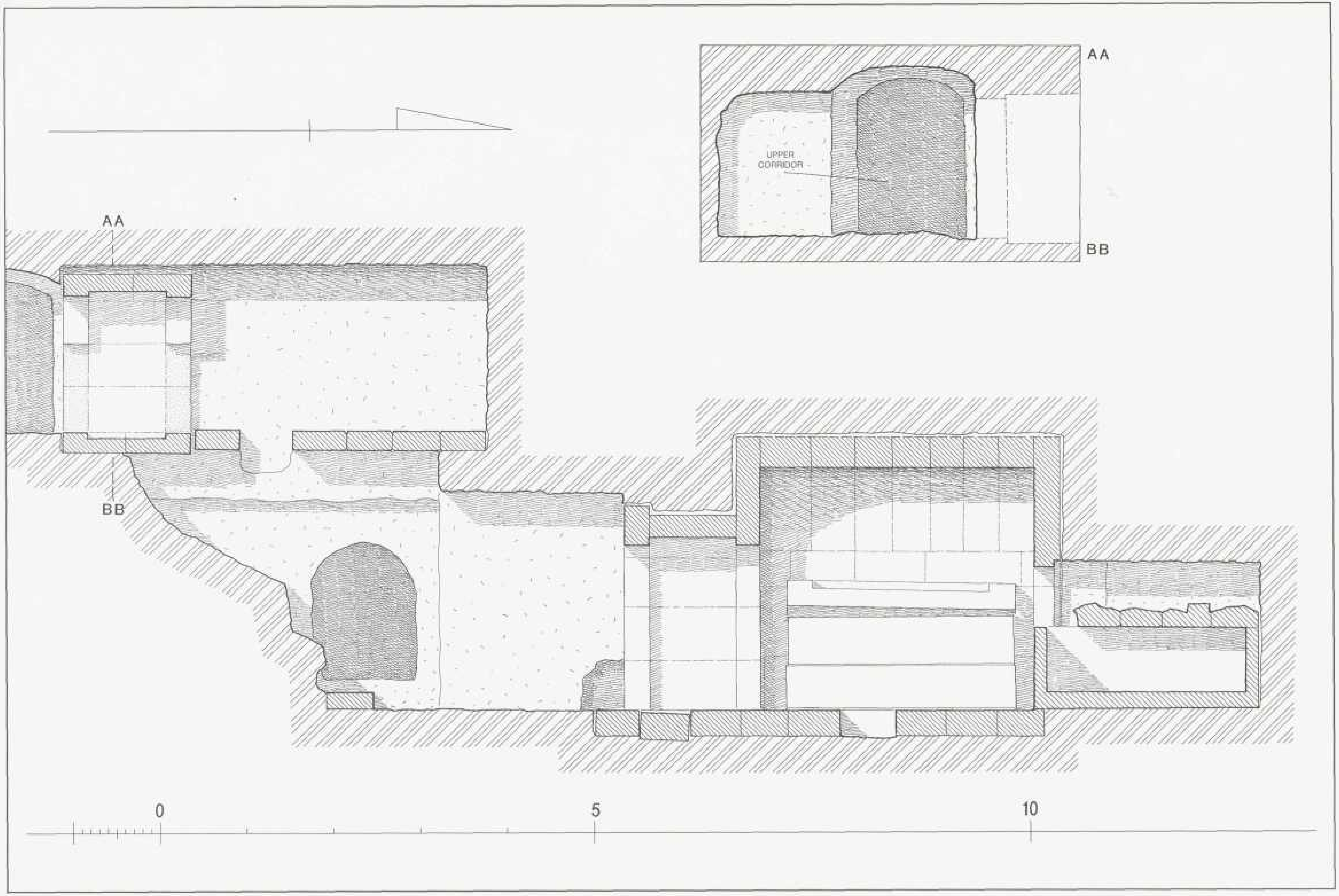
Pl. 94. Tomb 3 (Itakayet). *A)* Axonometric view. No scale. *B)* Transverse sections C–D and E–F through the crypt and east chamber. Scale 1:50. Drawings R.V. from drawings by D.A.



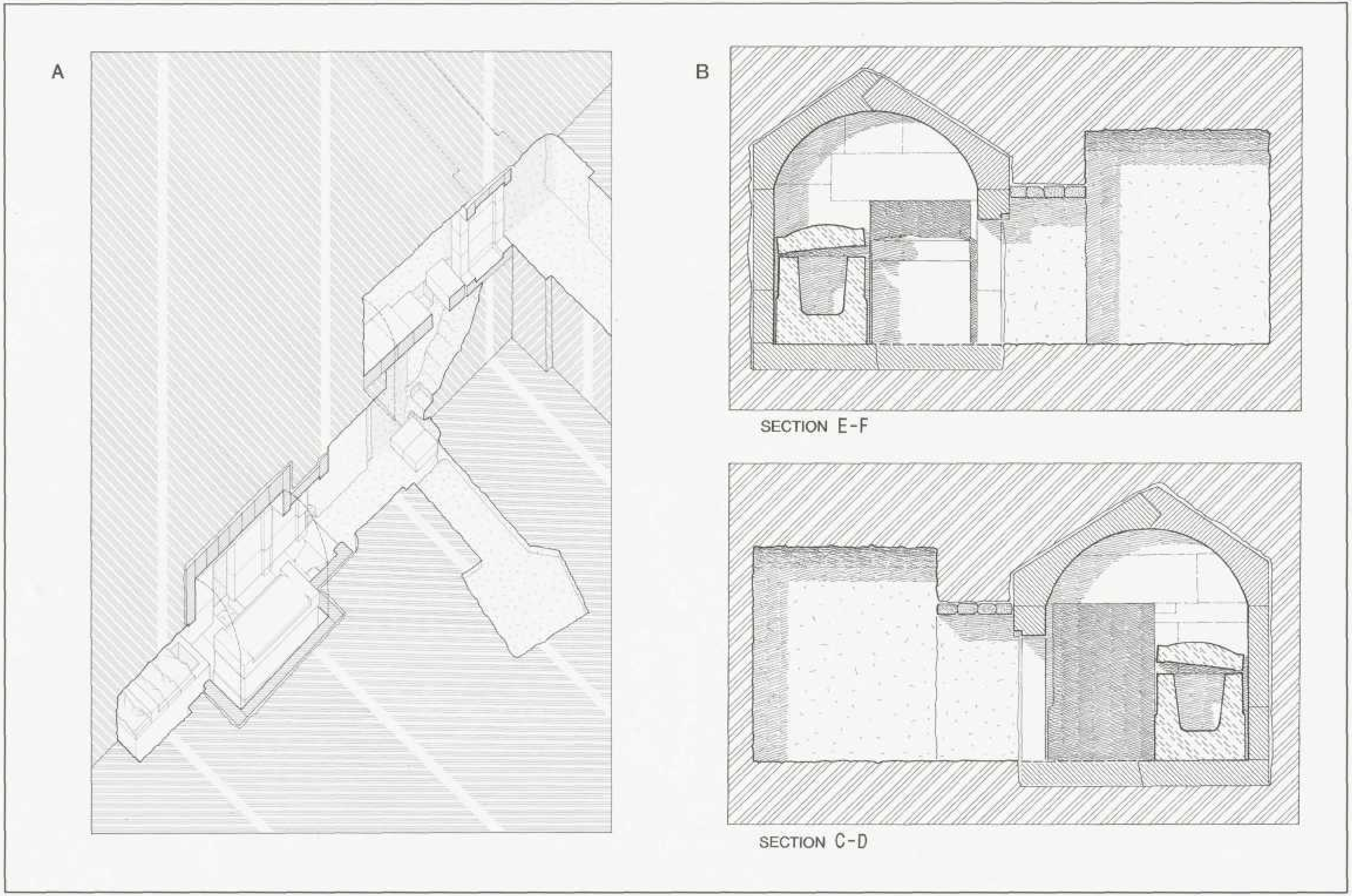
Pl. 95. Tomb 2 (Nefret-henut). Position sketch and north-south longitudinal section. Scale 1:50. Drawings R.V. from drawings by R.T.



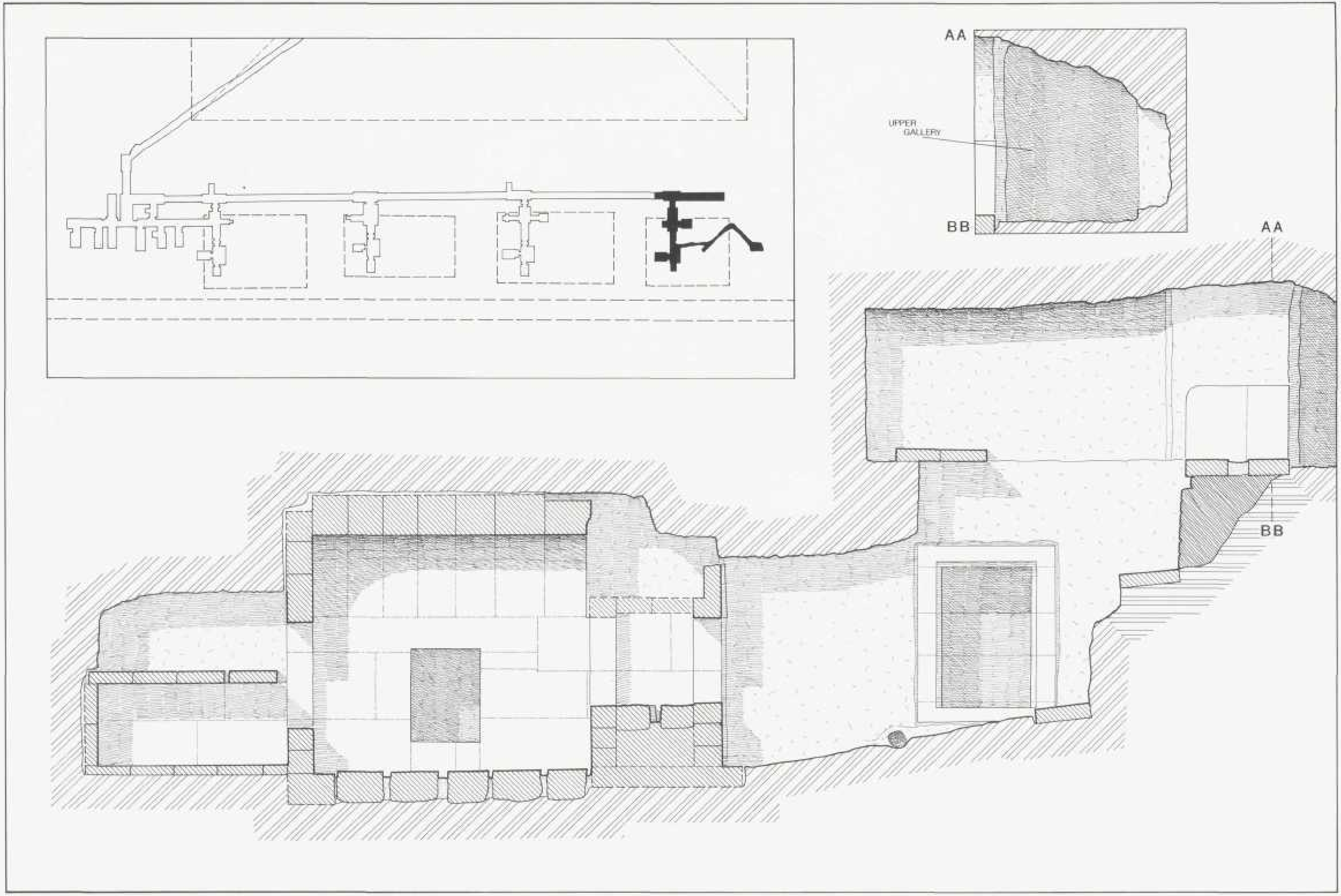
Pl. 96. Tomb 2 (Nefret-henut). Plan, upper chamber [1], canopic niche [2], unfinished side chamber [3], crypt [4], north chamber with secondary sarcophagus [5], and east chamber [6]. West-east section (A–B) through the canopic niche. Scale 1:50. Drawings R.V. from drawings by R.T.



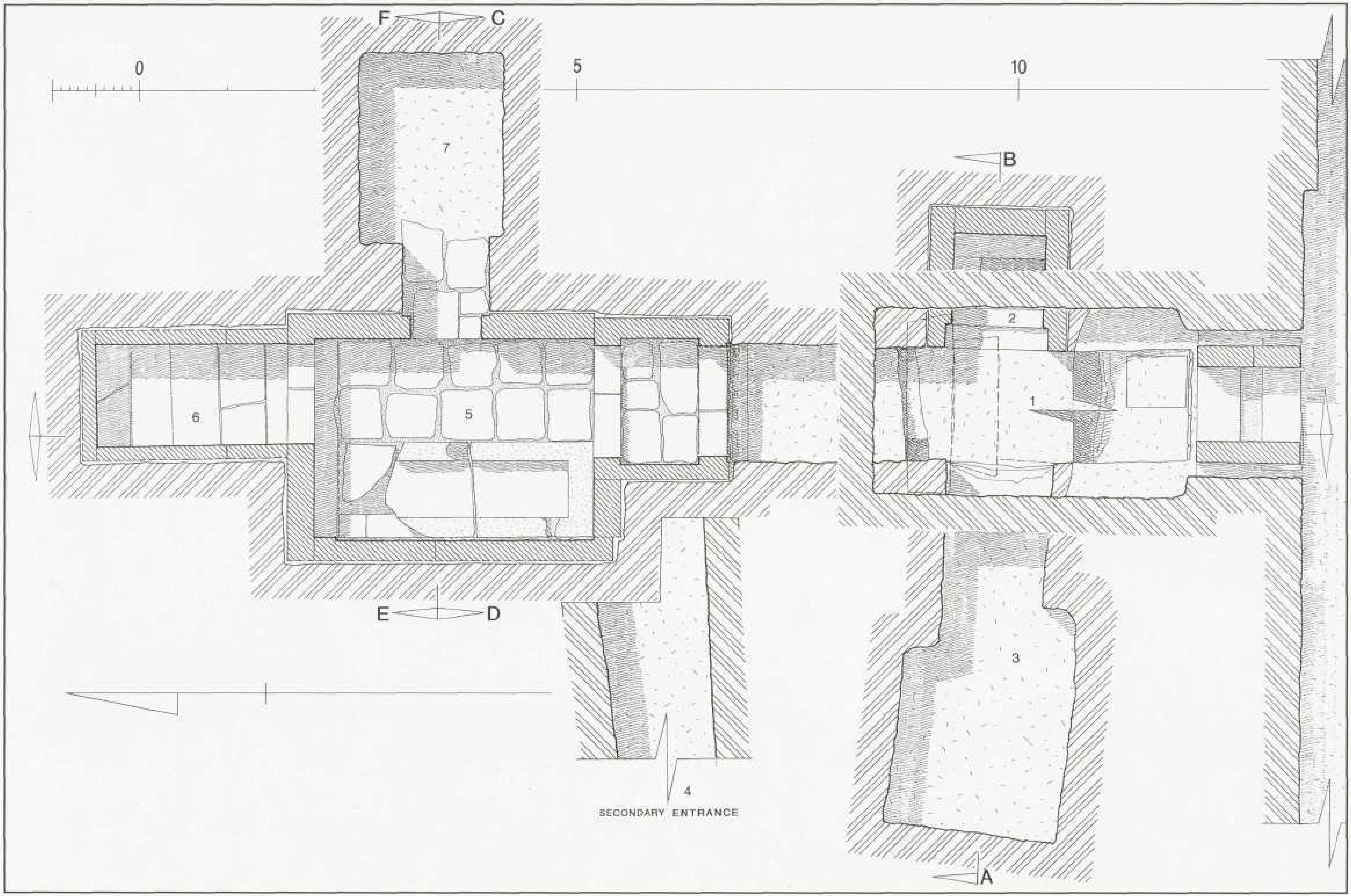
Pl. 97. Tomb 2 (Nefret-henut). South-north longitudinal section, and a portion of the upper corridor (AA–BB). Scale 1:50. Drawing R.V. from drawings by R.T.



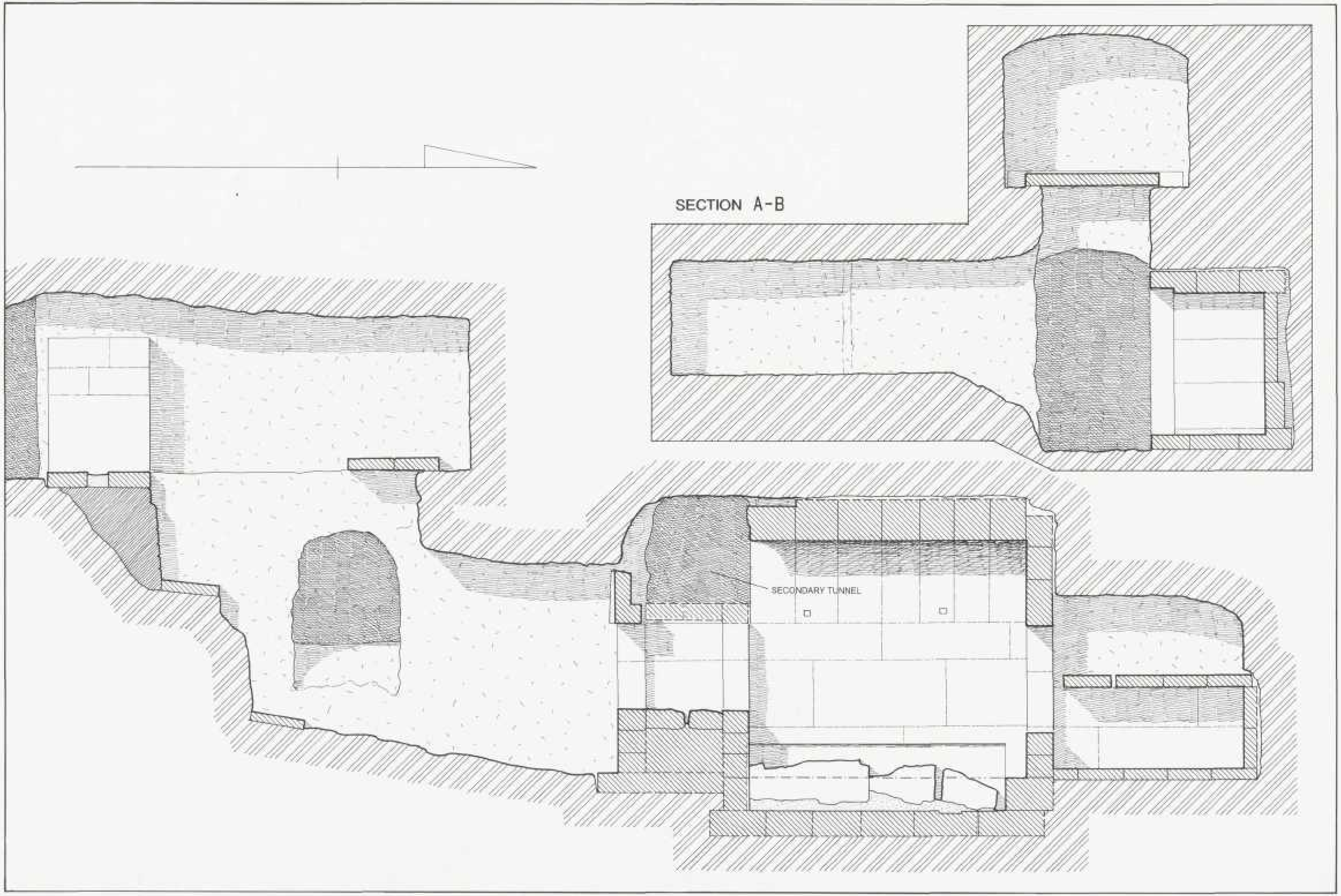
Pl. 98. Tomb 2 (Nefret-henut). *A)* Axonometric view. No scale. *B)* Transverse sections C–D and E–F through the crypt and east chamber. Scale 1:50. Drawings R.V. from drawings by R.T.



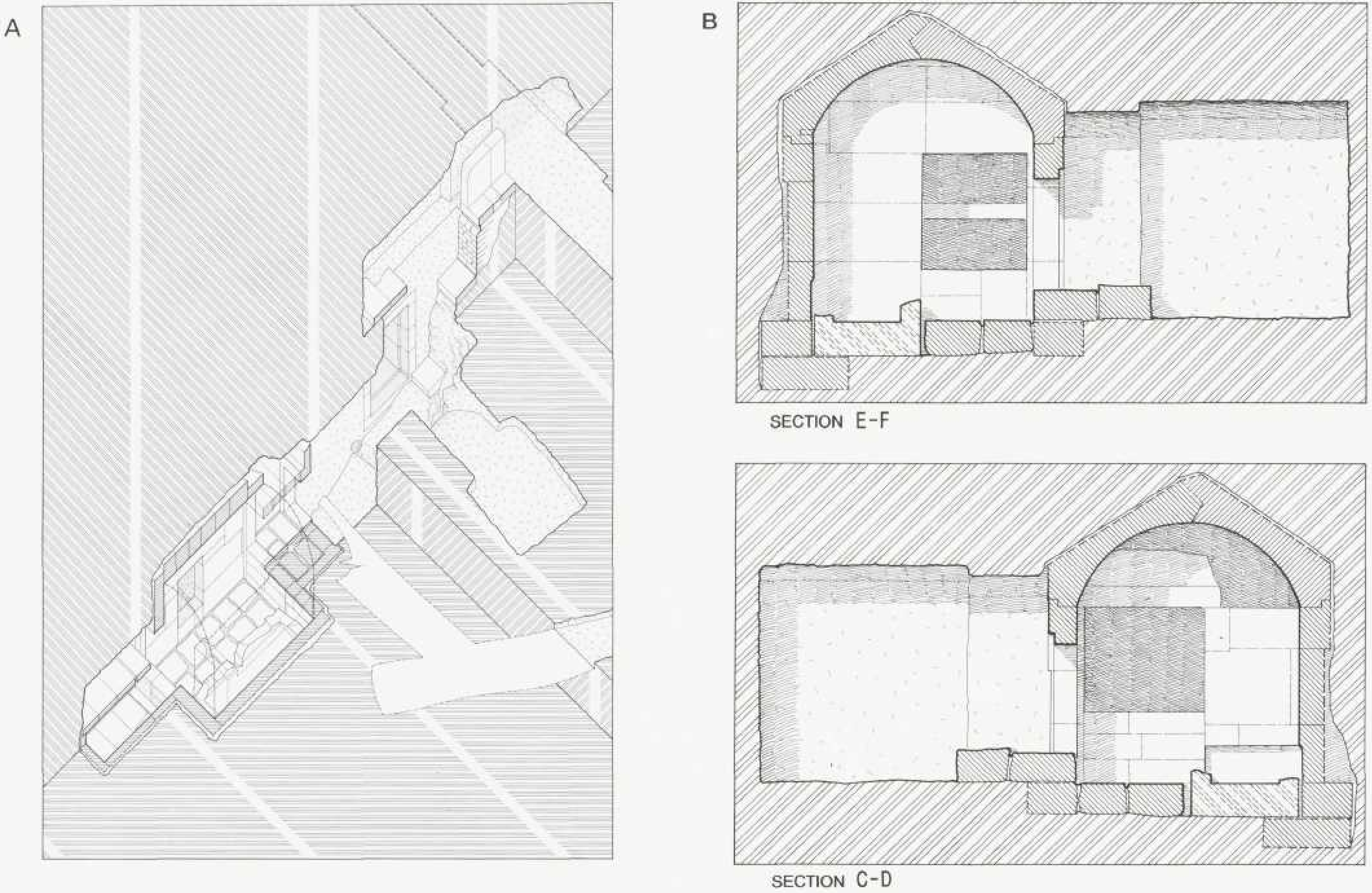
Pl. 99. Tomb 1. Position sketch, north-south longitudinal section, and portion of the upper corridor. Scale 1:50. Drawings R.V. from drawings by L.V.



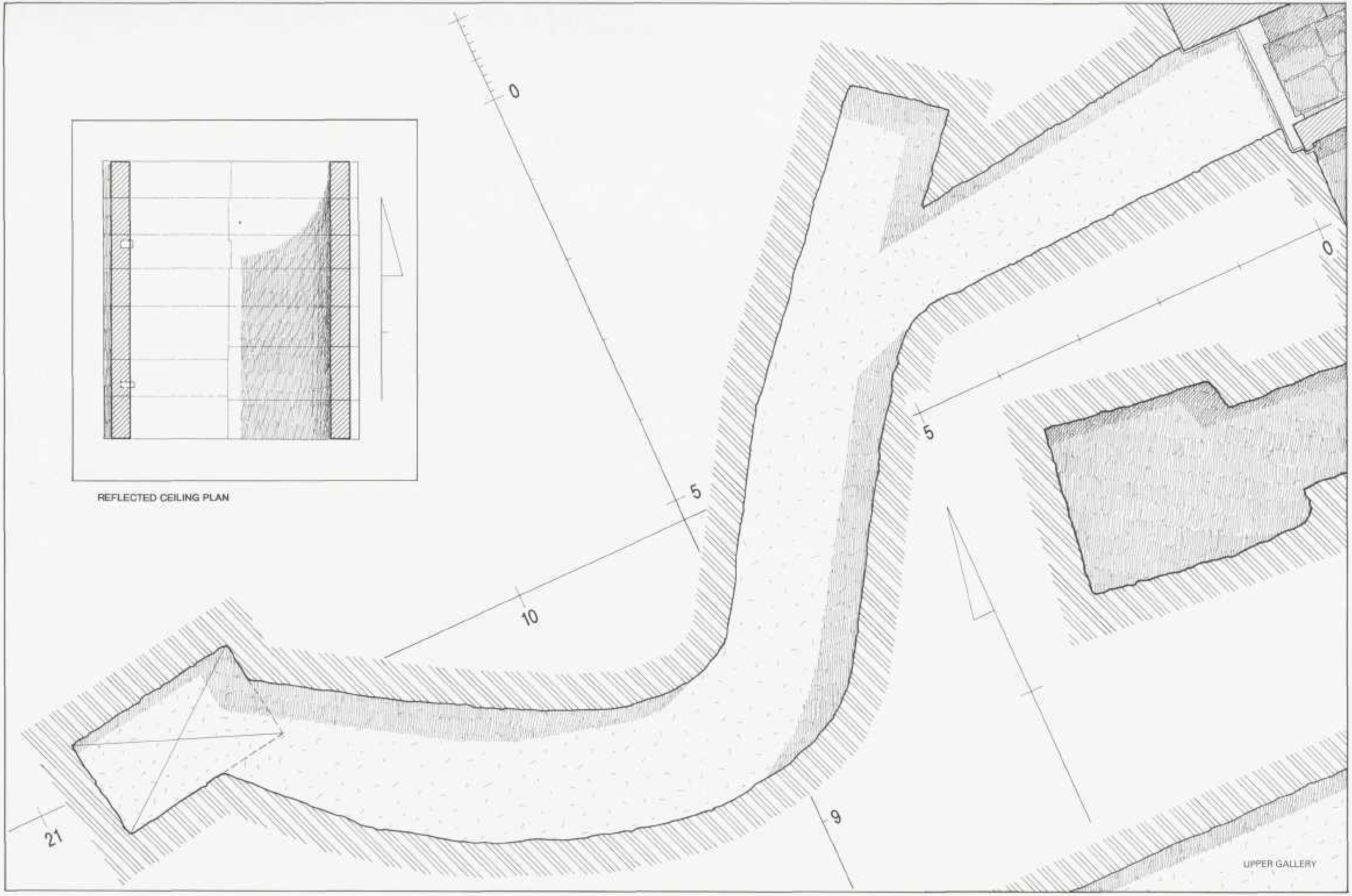
Pl. 100. Tomb 1. Plan, upper chamber [1], canopic niche [2], unfinished side chamber [3], tunnel to secondary shaft [4], crypt [5], north chamber [6], and east chamber [7]. Scale 1:50. Drawing R.V. from drawings by L.V.



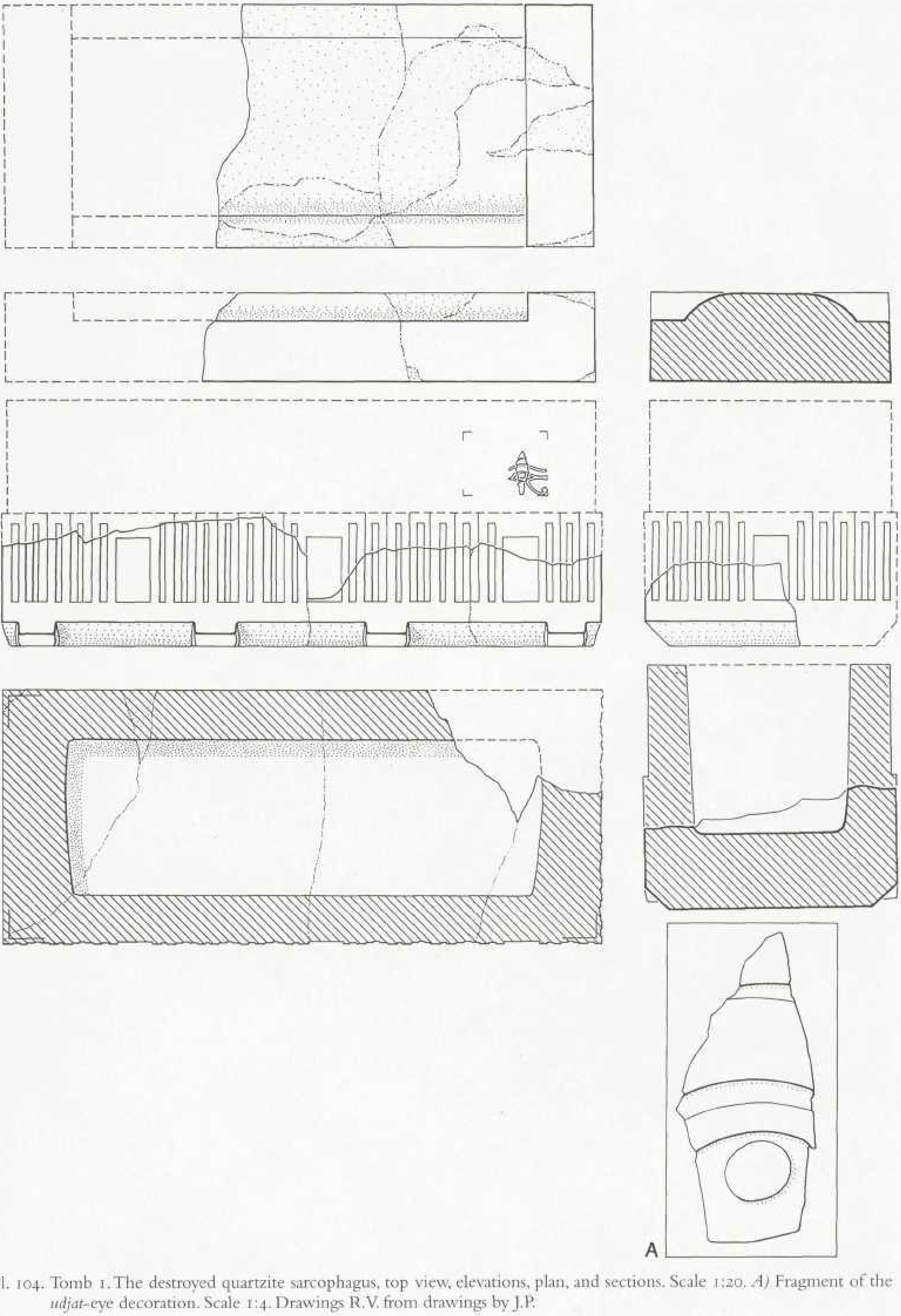
Pl. 101. Tomb 1. South-north longitudinal section and west-east transverse section (A–B). Scale 1:50. Drawings R.V. from drawings by L.V.



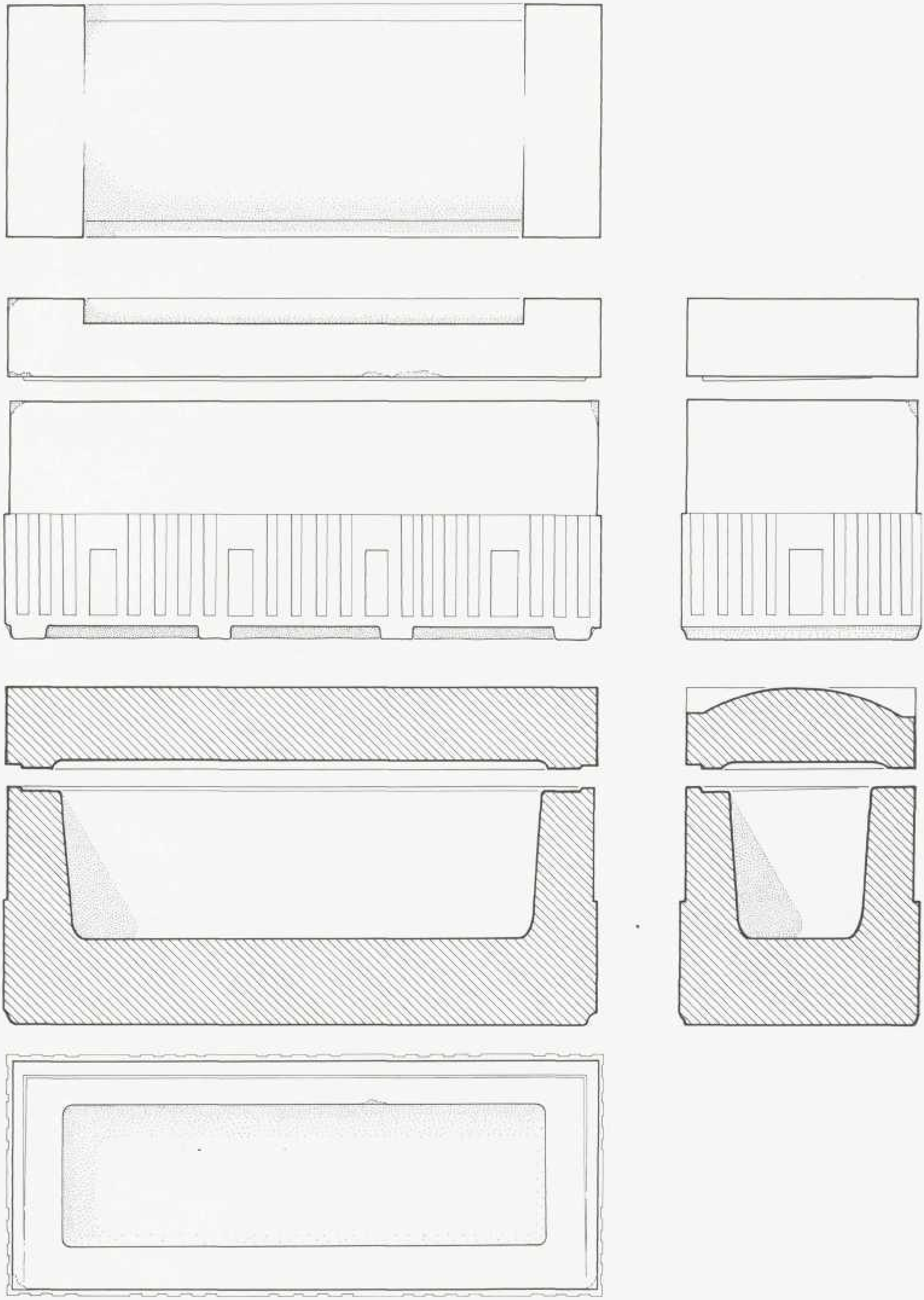
Pl. 102. Tomb 1. *A)* Axonometric view. No scale. *B)* Transverse sections C–D and E–F through the crypt and east chamber. Scale 1:50. Drawings R.V. from drawings by L.V.



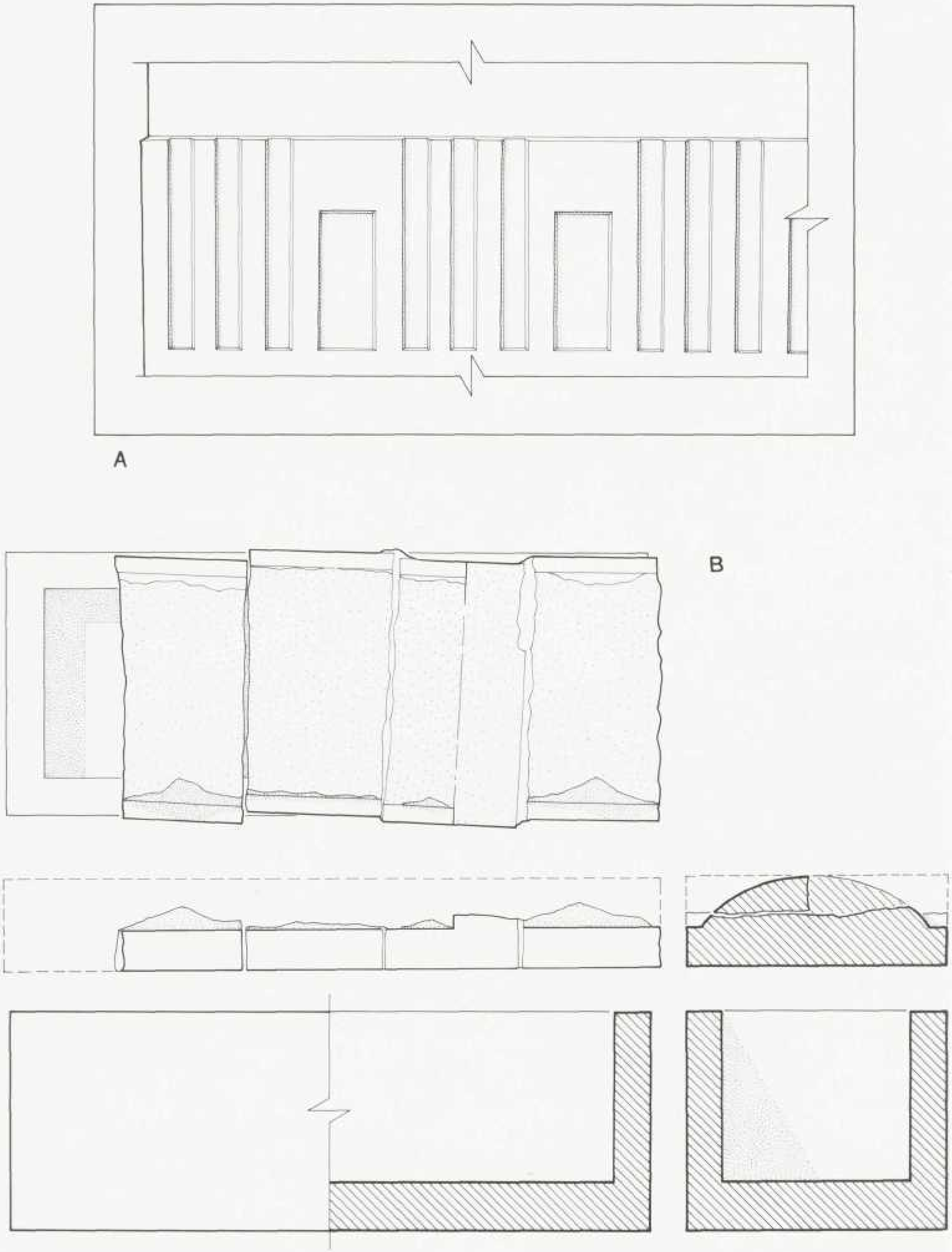
Pl. 103. Plan of the secondary shaft and tunnel into tomb 1; the west edge of tomb 1 appears at the far right of the drawing. Inset: Reflected ceiling plan of the crypt of tomb 1. Scale 1:50. Drawings R.V. from drawings by R.T.



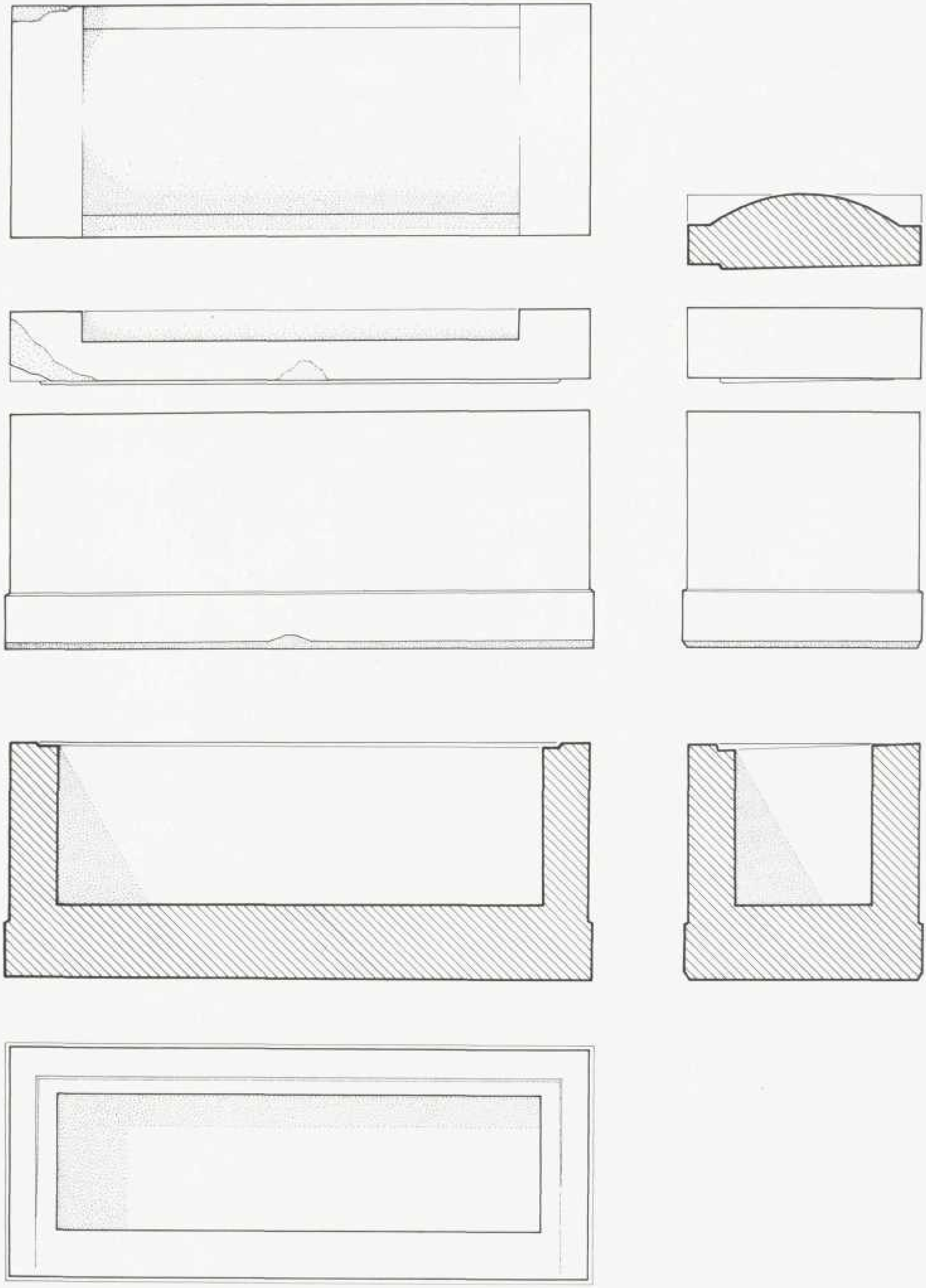
Pl. 104. Tomb 1. The destroyed quartzite sarcophagus, top view, elevations, plan, and sections. Scale 1:20. *A)* Fragment of the *udjat*-eye decoration. Scale 1:4. Drawings R.V. from drawings by J.P.



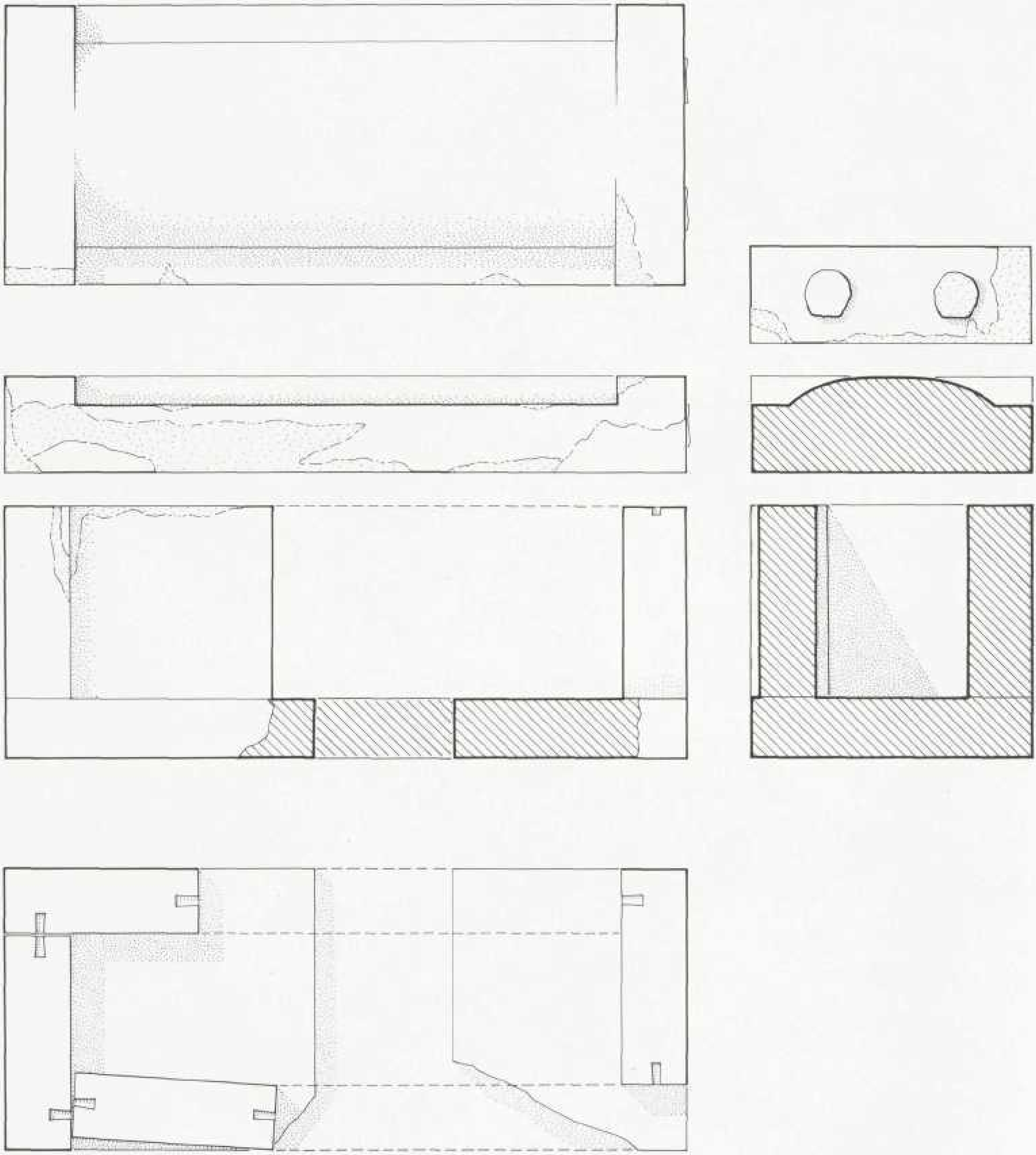
Pl. 105. Tomb 2 (Nefret-henut). The quartzite sarcophagus, top view, elevations, sections, and top view of box. Scale 1:20. Drawings R.V. from drawings by J.P.



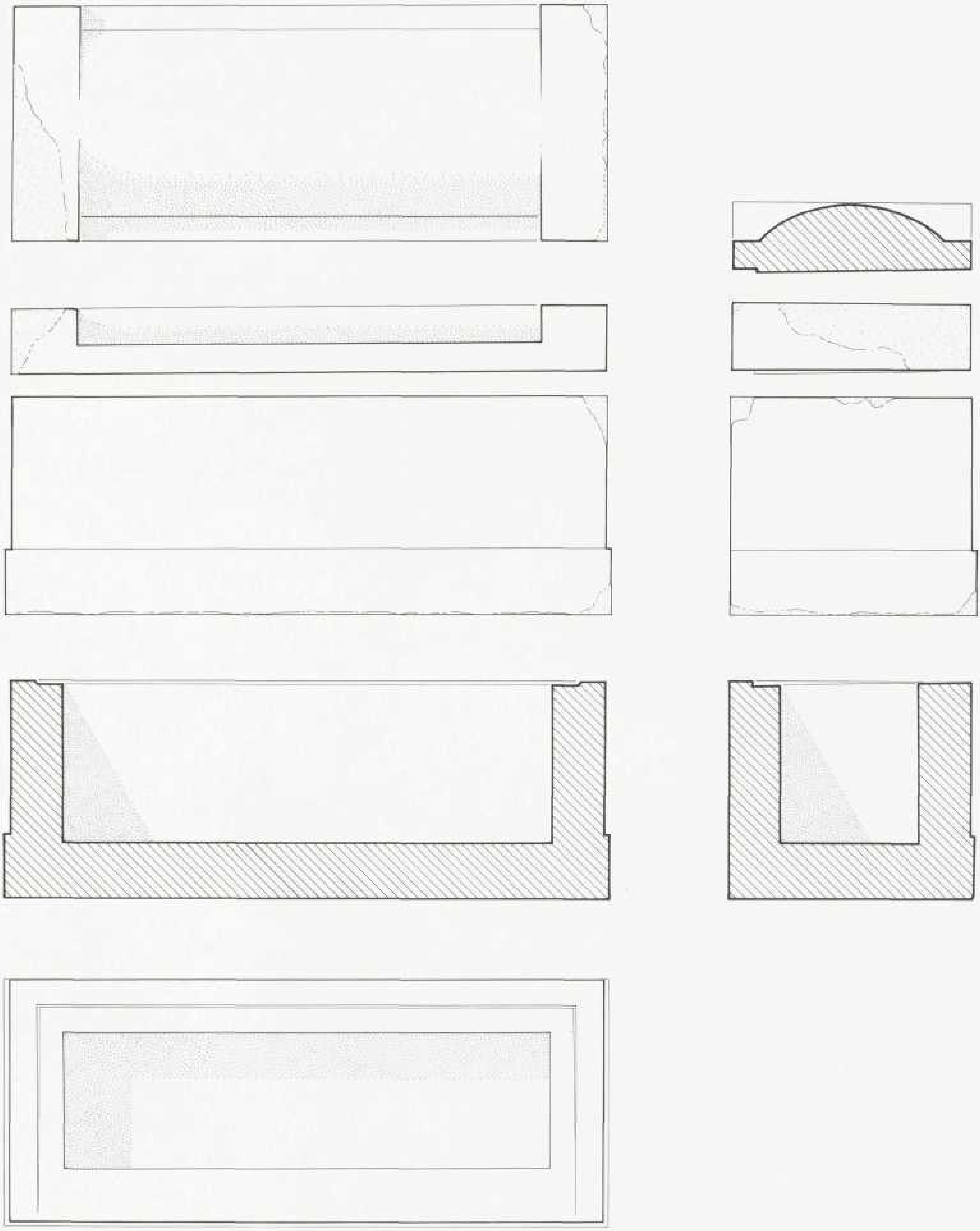
Pl. 106. Tomb 2 (Nefret-henut). *A)* Detail of the paneling on the quartzite sarcophagus. Scale 1:10. *B)* Top view and sections of the secondary limestone sarcophagus. Scale 1:20. Drawings R.V. from drawings by J.P.



Pl. 107. Tomb 3 (Itakayet). The granite sarcophagus, top view, elevations, sections, and top view of box. Scale 1:20. Drawings R.V. from drawings by J.P.

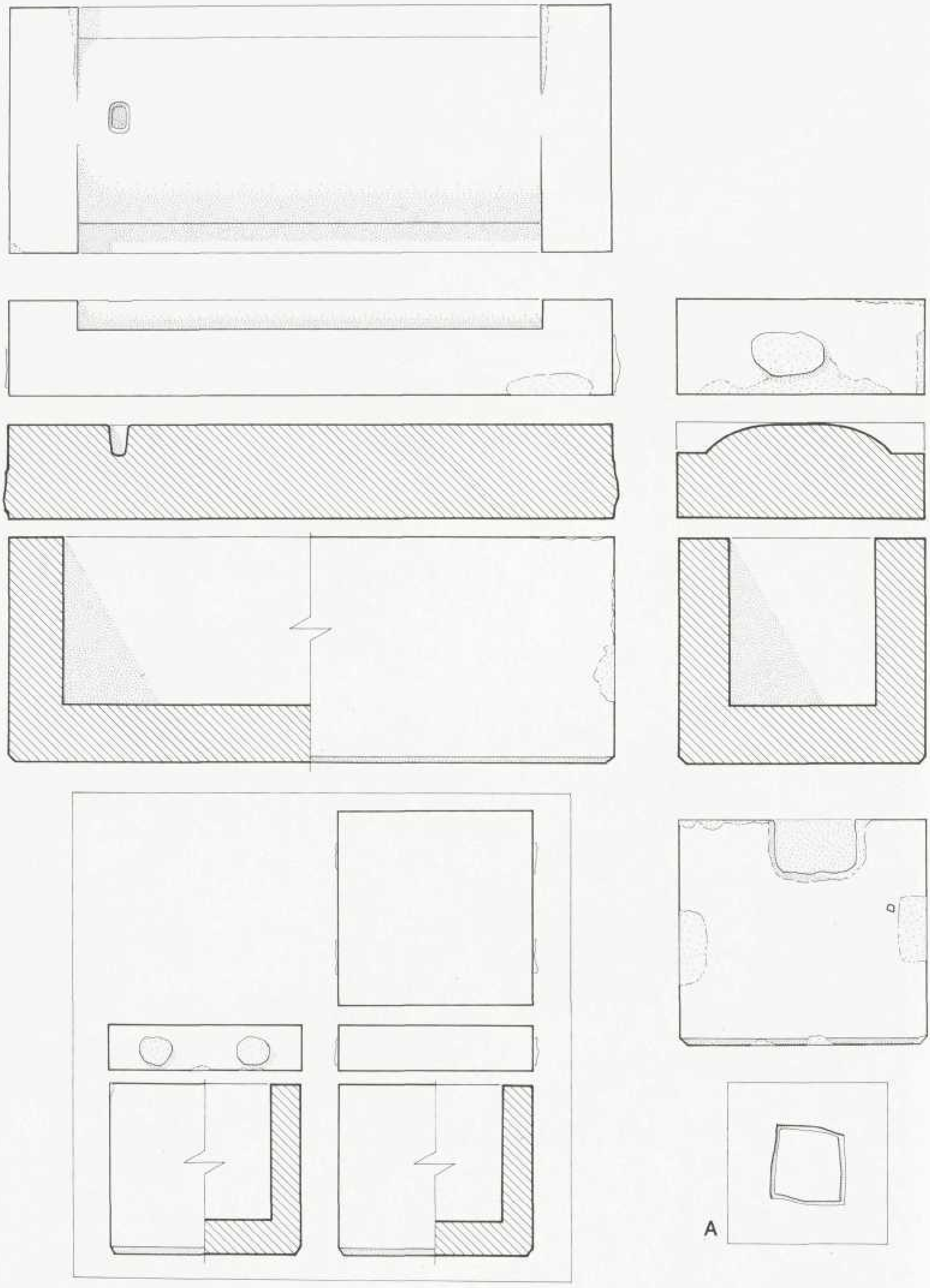


Pl. 108. Tomb 4. The limestone sarcophagus, top view, elevation, section, and plan. Scale 1:20. Drawings R.V. from drawings by J.P.

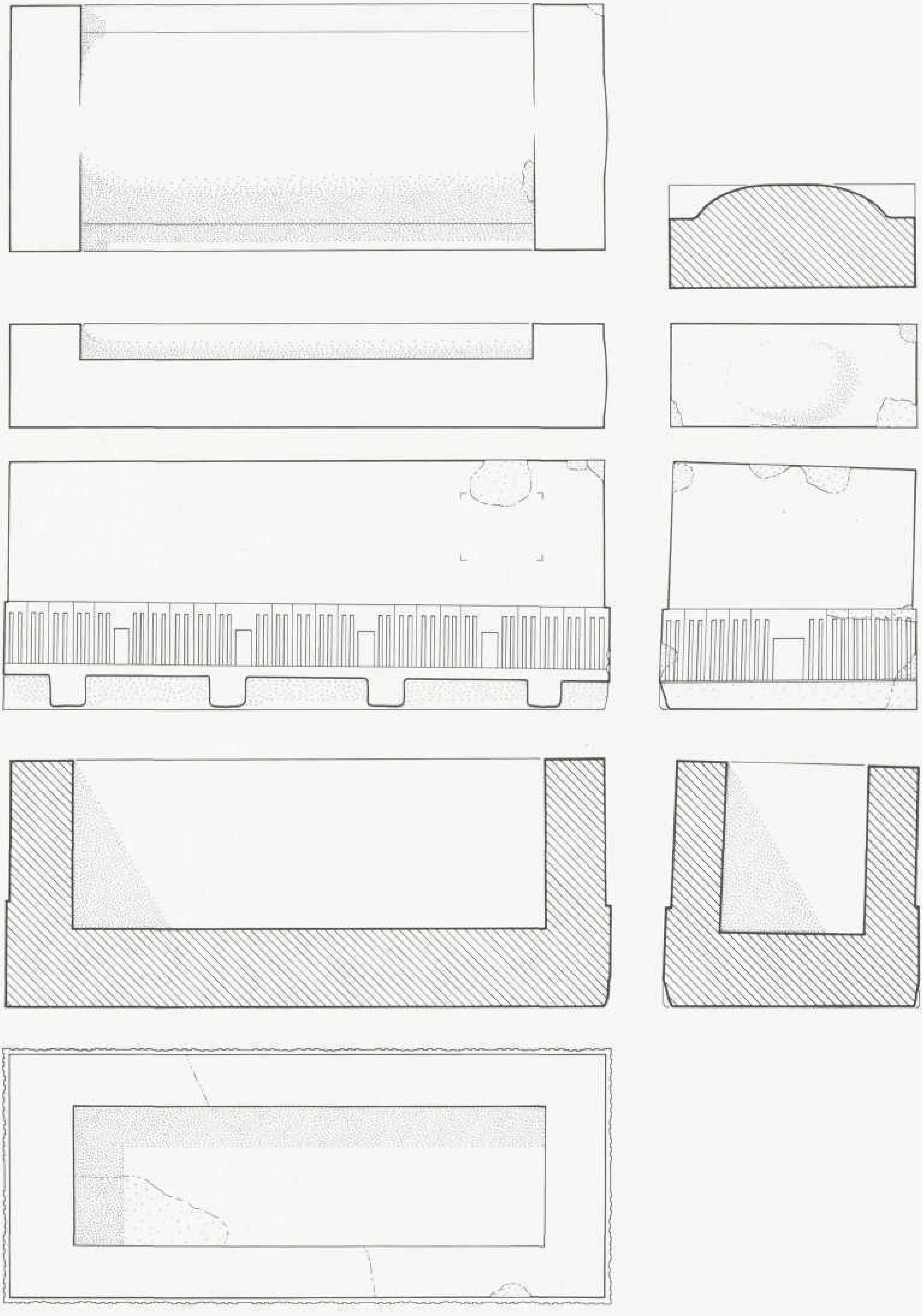


Pl. 109. Tomb 5. The granite sarcophagus, top view, elevations, sections, and top view of box. Scale 1:20. Drawings R.V. from drawings by J.P.

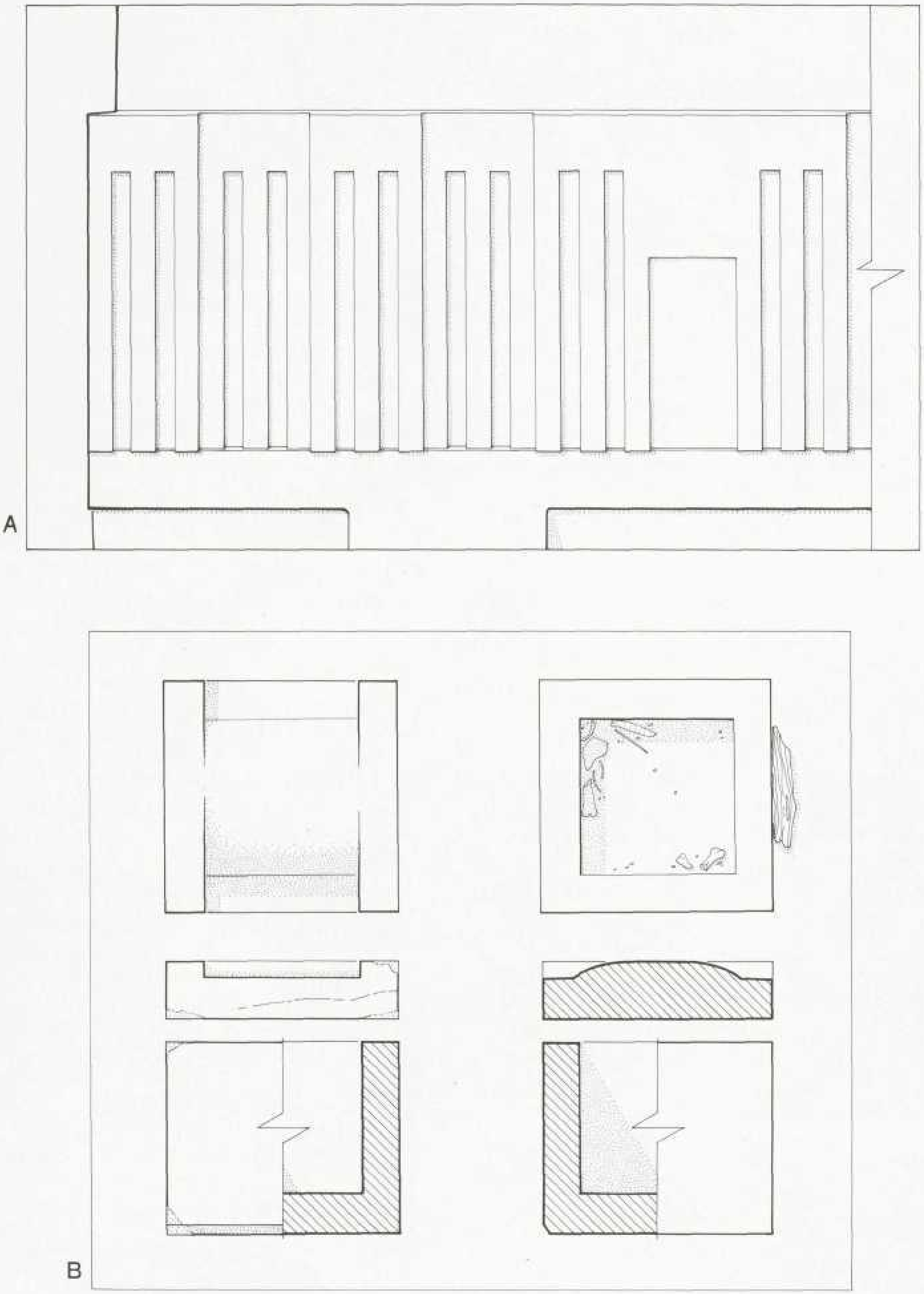
PLATE 110



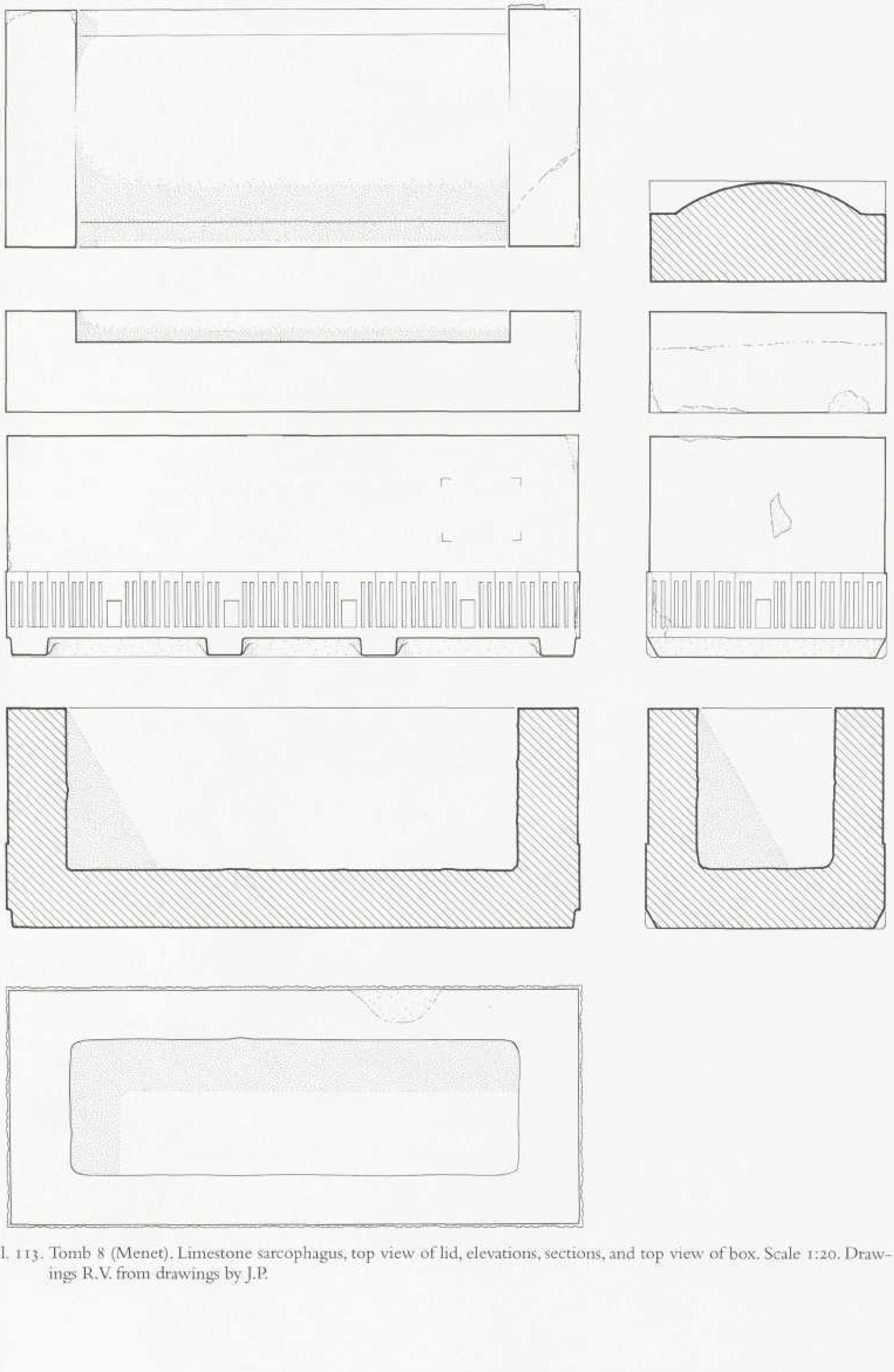
Pl. 110. Tomb 6 (Mereret?). The limestone sarcophagus, top view, elevations, and sections. Inset: The limestone canopic chest. *A)* Side elevation of the sarcophagus and the mark found on it. Scale 1:20. Drawings R.V. from drawings by J.P.



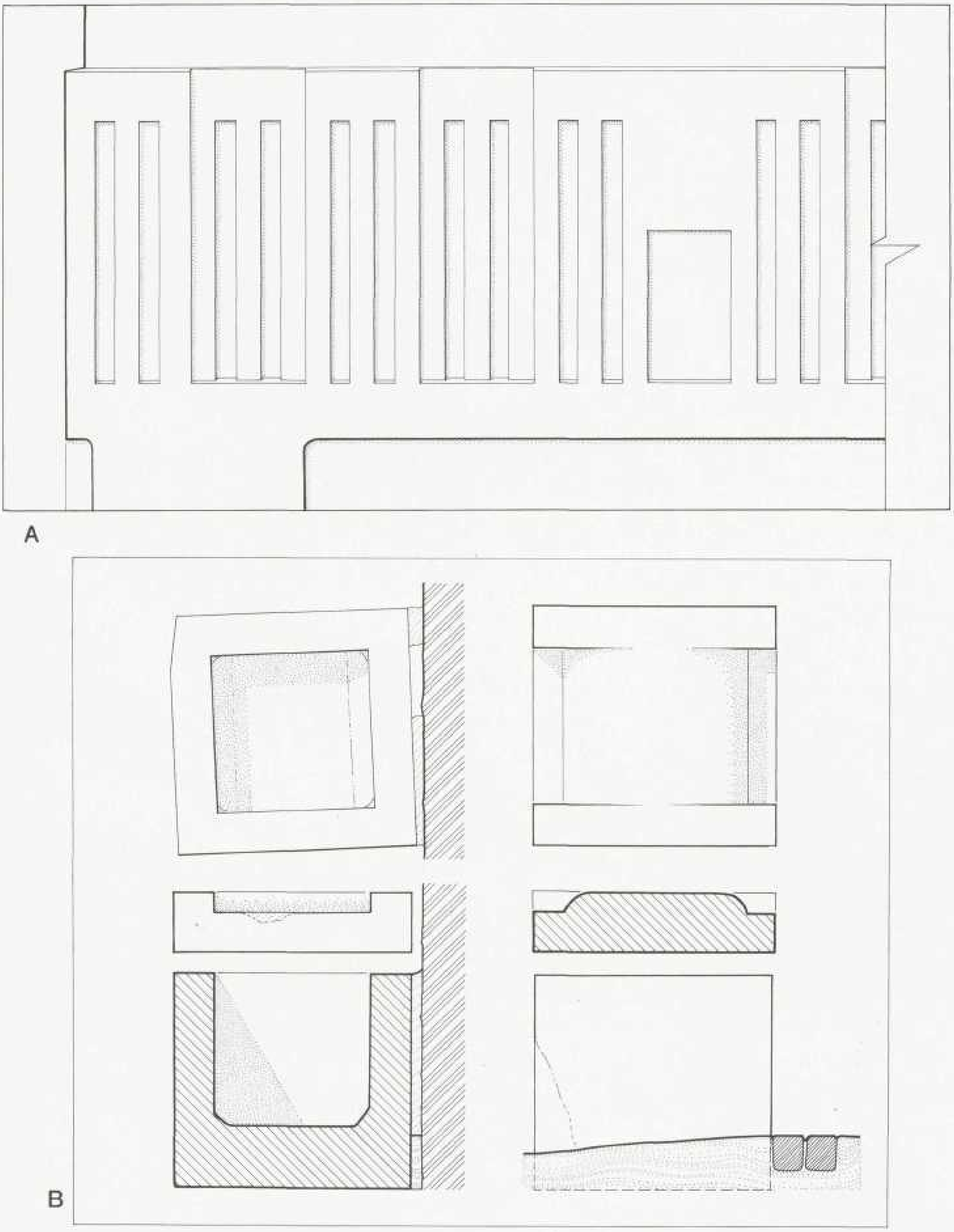
Pl. 111. Tomb 7 (Senet-senebetes). The limestone sarcophagus, top view, elevations, sections, and top view of box. Scale 1:20. Drawings R.V. from drawings by J.P.



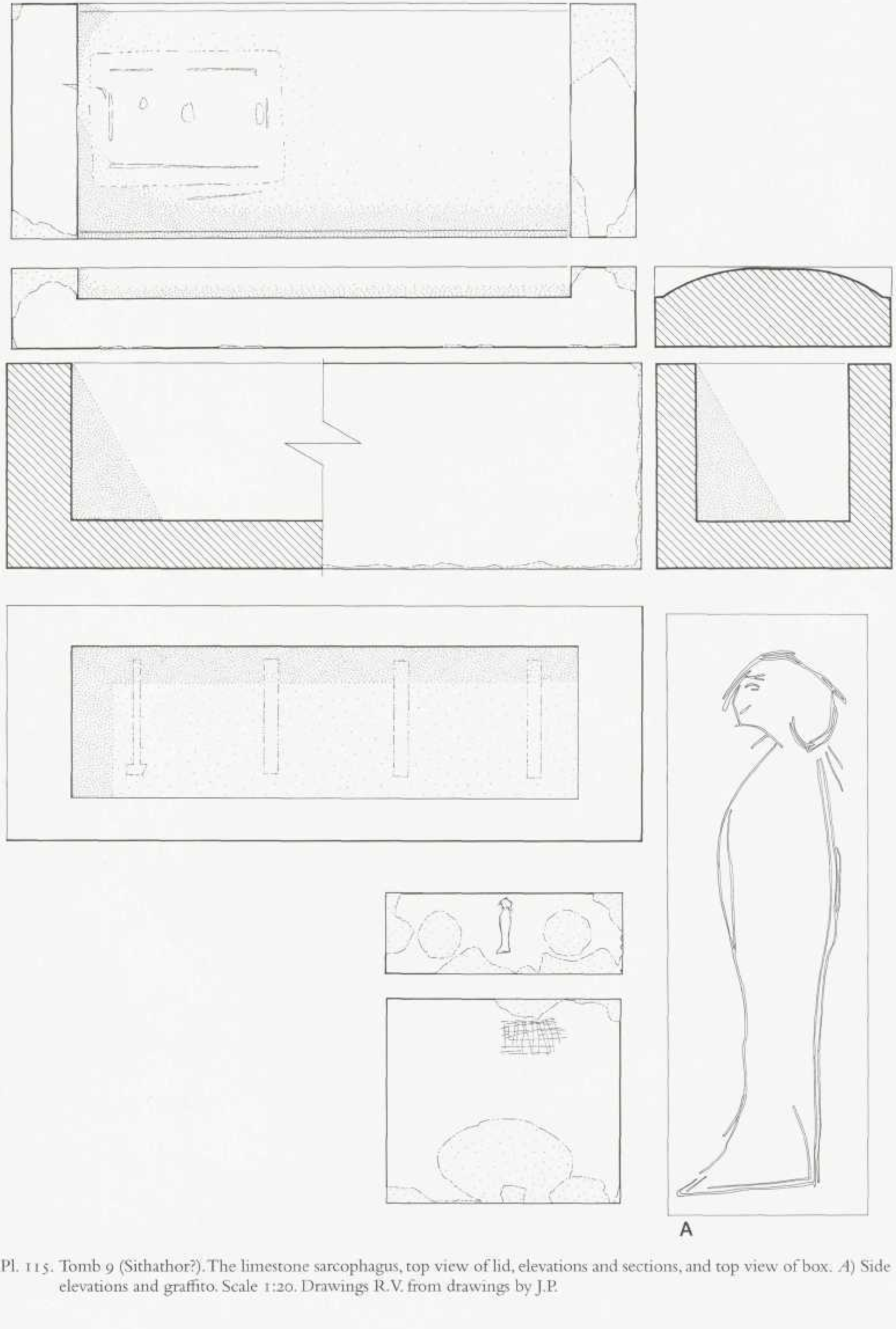
Pl. 112. Tomb 7 (Senet-senebetes). *A)* Detail of the paneling on the limestone sarcophagus. Scale 1:4. *B)* Limestone canopic chest, top views of lid and box, elevations, and sections. Scale 1:20. Drawings R.V. from drawings by J.P.



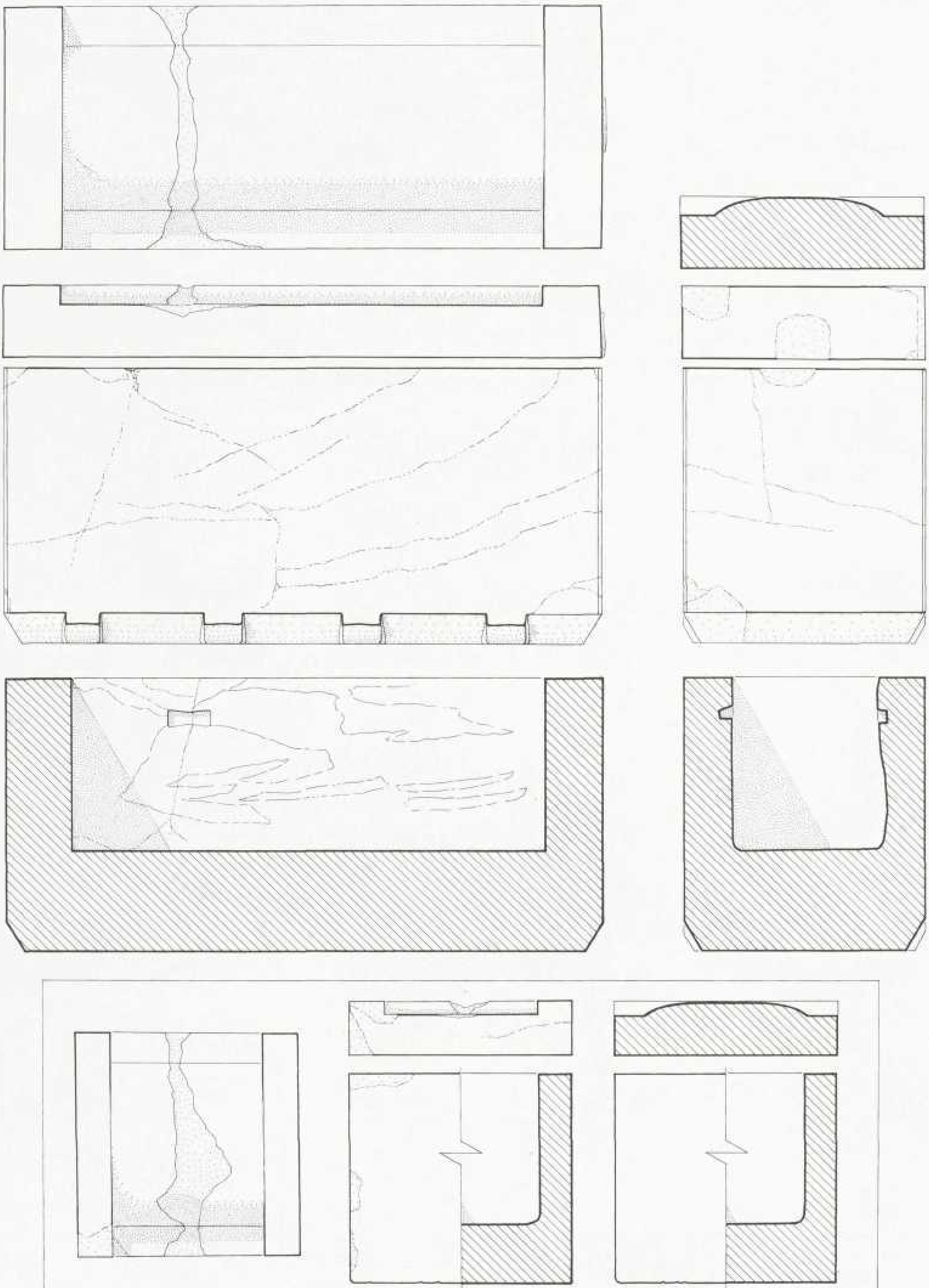
Pl. 113. Tomb 8 (Menet). Limestone sarcophagus, top view of lid, elevations, sections, and top view of box. Scale 1:20. Drawings R.V. from drawings by J.P.



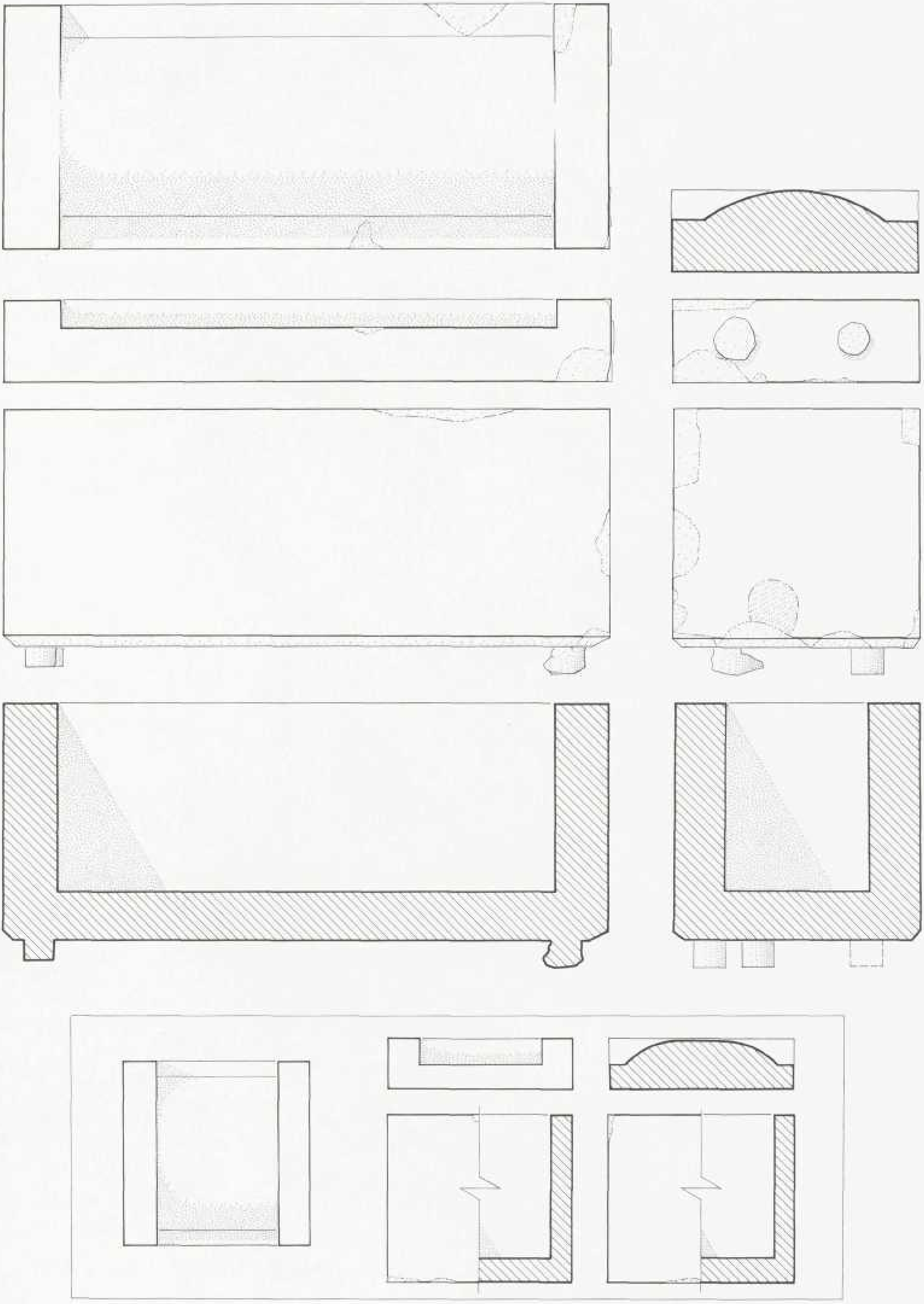
Pl. 114. Tomb 8 (Menet). *A)* Detail of the paneling on the limestone sarcophagus. Scale 1:4. *B)* The limestone canopic chest, top views of box and lid, sections, and elevations. Scale 1:20. Drawings R.V. from drawings by J.P.



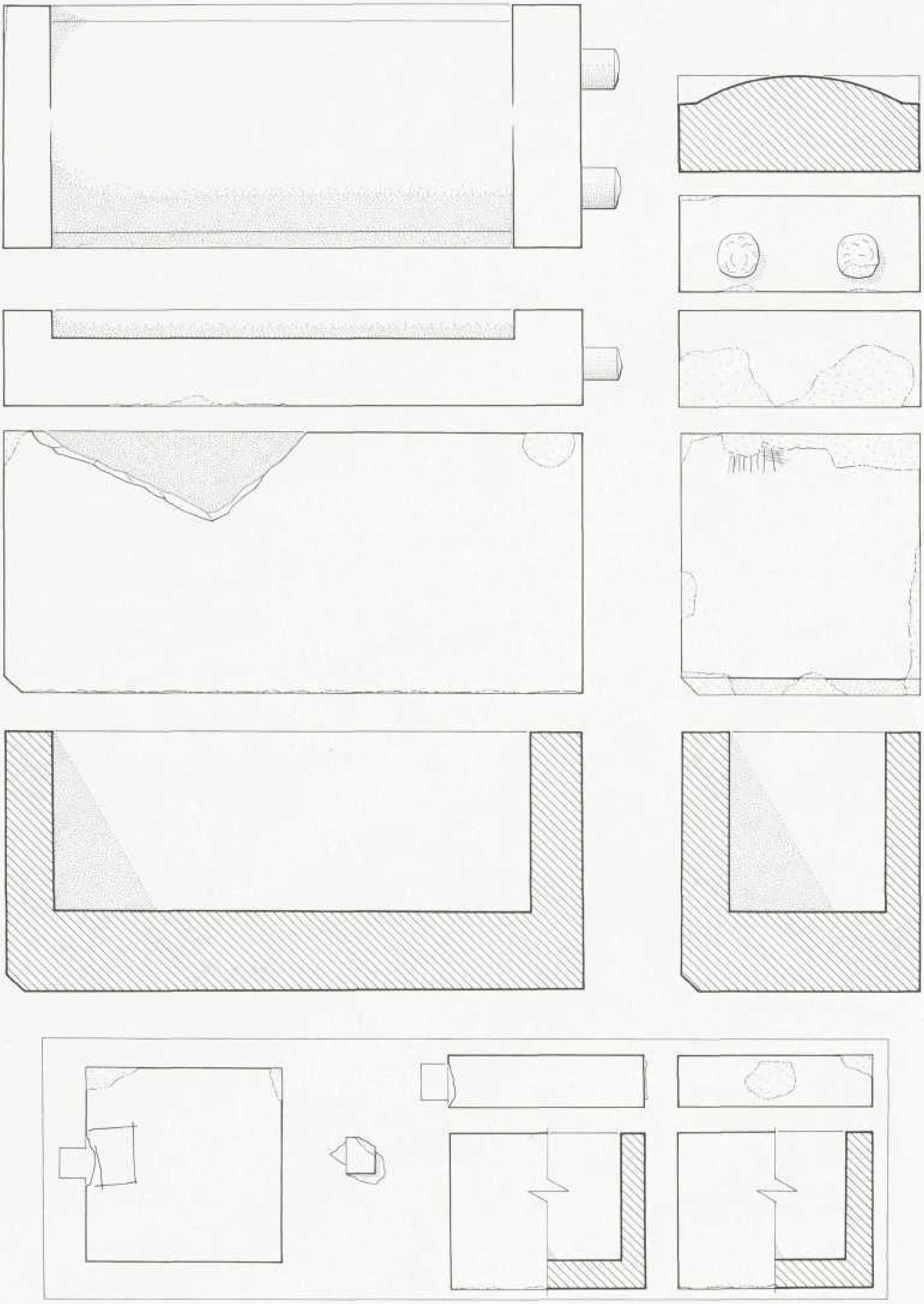
Pl. 115. Tomb 9 (Sithathor?). The limestone sarcophagus, top view of lid, elevations and sections, and top view of box. *A*) Side elevations and graffito. Scale 1:20. Drawings R.V. from drawings by J.P.



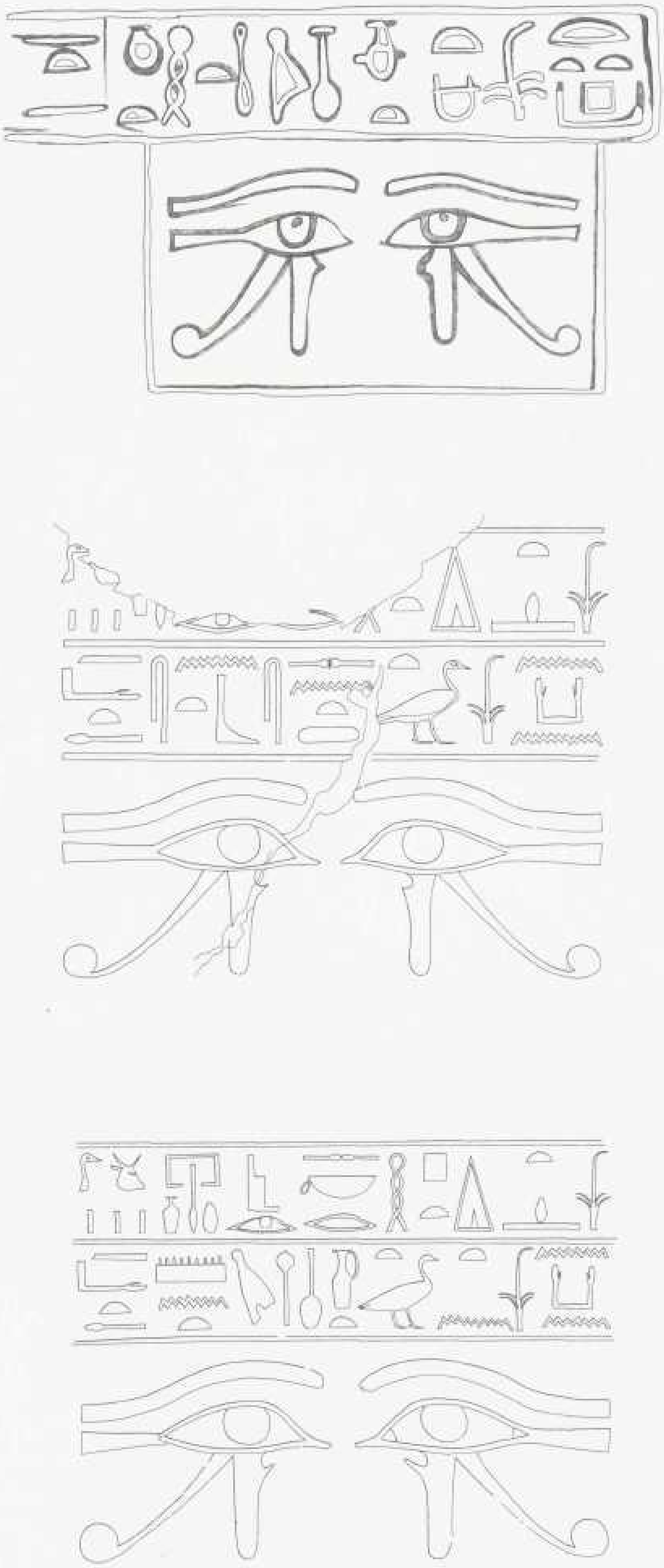
Pl. 116. Tomb 10. The limestone sarcophagus and canopic chest, top views of lids, elevations, and sections. Scale 1:20. Drawings R.V. from drawings by J.P.



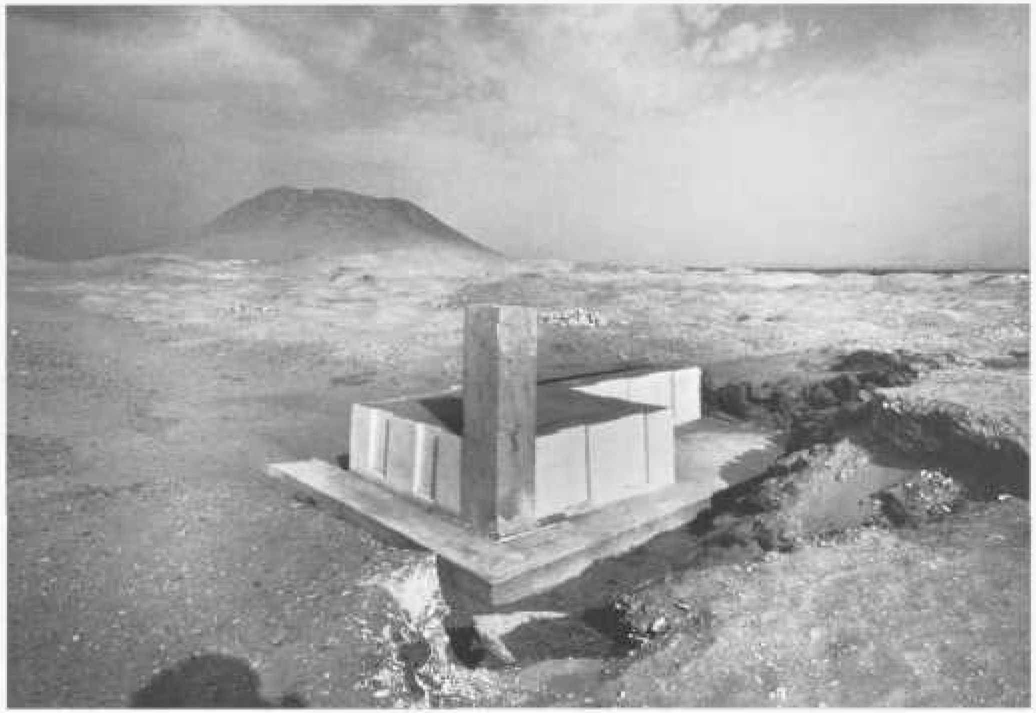
Pl. 117. Tomb 11. The limestone sarcophagus and canopic chest, top views of lids, elevations, and sections. Scale 1:20. Drawings R.V. from drawings by J.P.



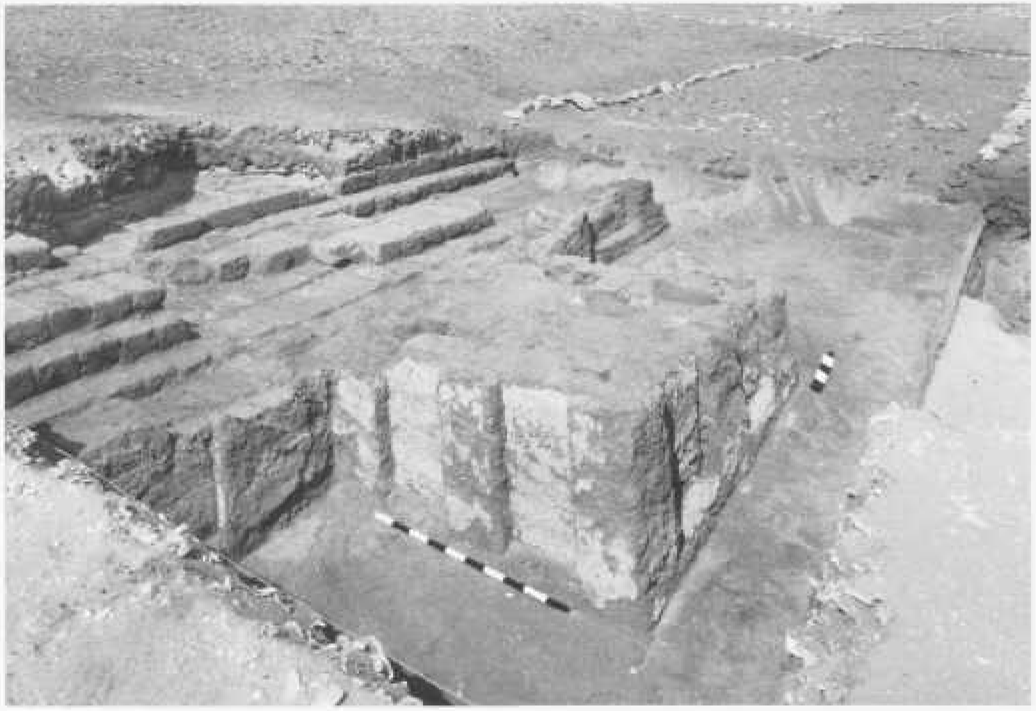
Pl. 118. Tomb 12. The limestone sarcophagus and canopic chest, top views of lids, elevations, and sections. Broken handle of the canopic chest is in the bottom row, second from left. Scale 1:20. Drawings R.V. from drawings by J.P.



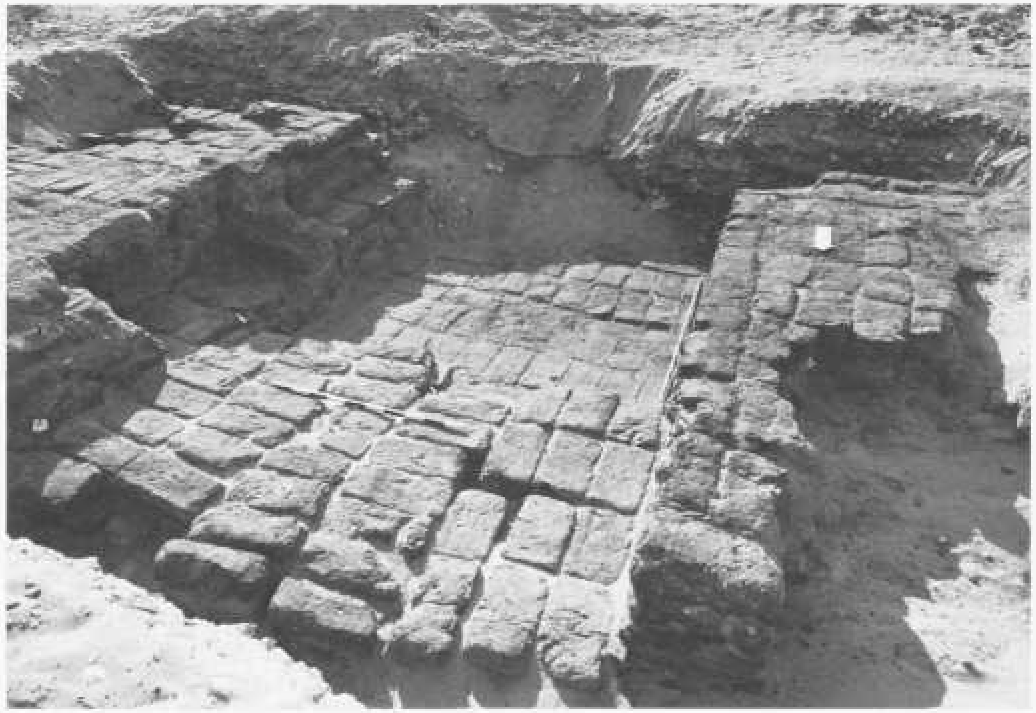
Pl. 119. The inscriptions and *udjat*-eyes on the sarcophagi of royal women. Upper: Tomb 2 (Queen Nefret-henut). Middle: Tomb 7 (Princess Senet-senebetes). Lower: Tomb 8 (Princess Menet). Scale 1:4. Drawings R.V. from drawings by J.P.



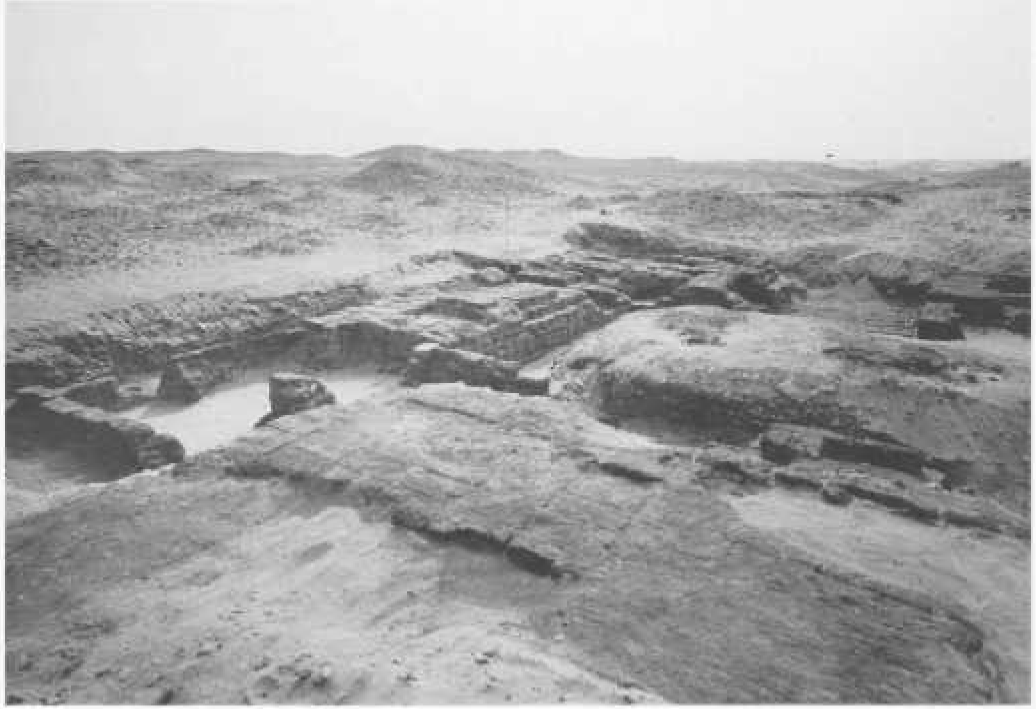
Pl. 120a. Restored southwest corner of the later brick outer enclosure wall, facing northeast. Photo A.O. (DH 93:23).



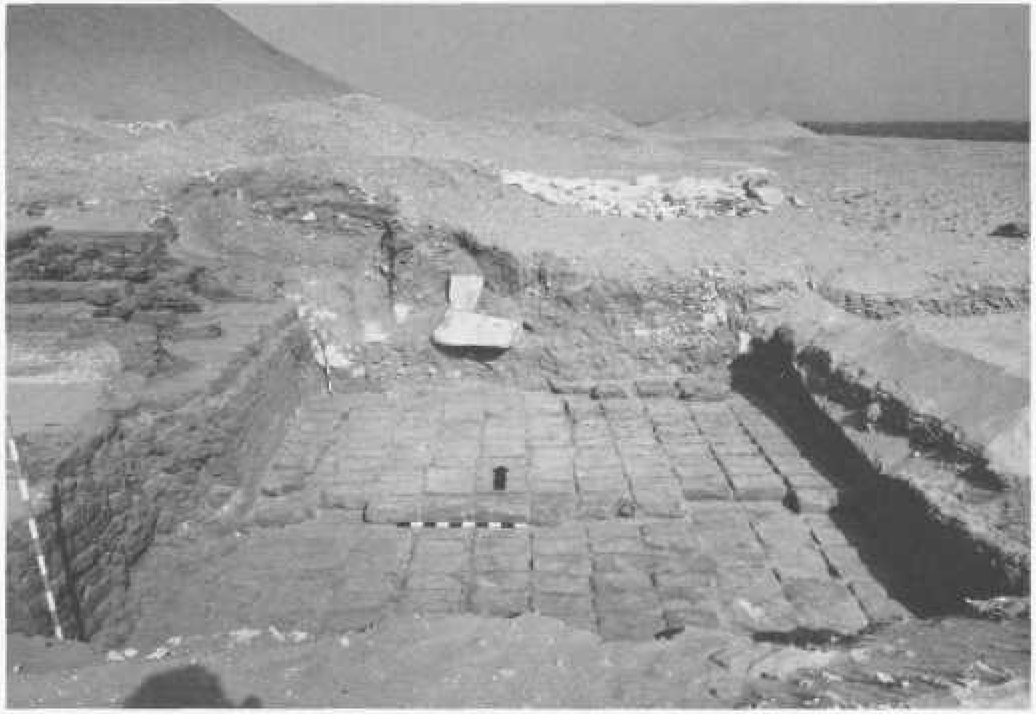
Pl. 120b. Projection 9 of the later east outer enclosure wall north of the causeway, facing northwest. Photo A.K. (DH 98:58/26–28).



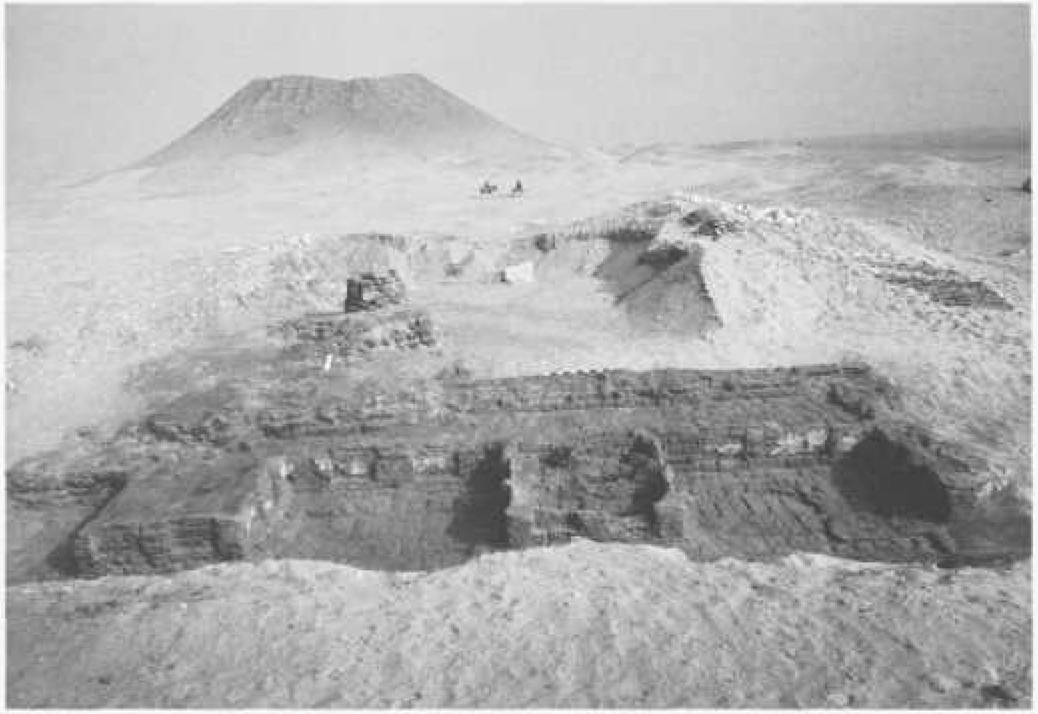
Pl. 120c. Subfoundation of the gate in the later south outer enclosure wall facing south. Photo G.D. (DH 90:172).



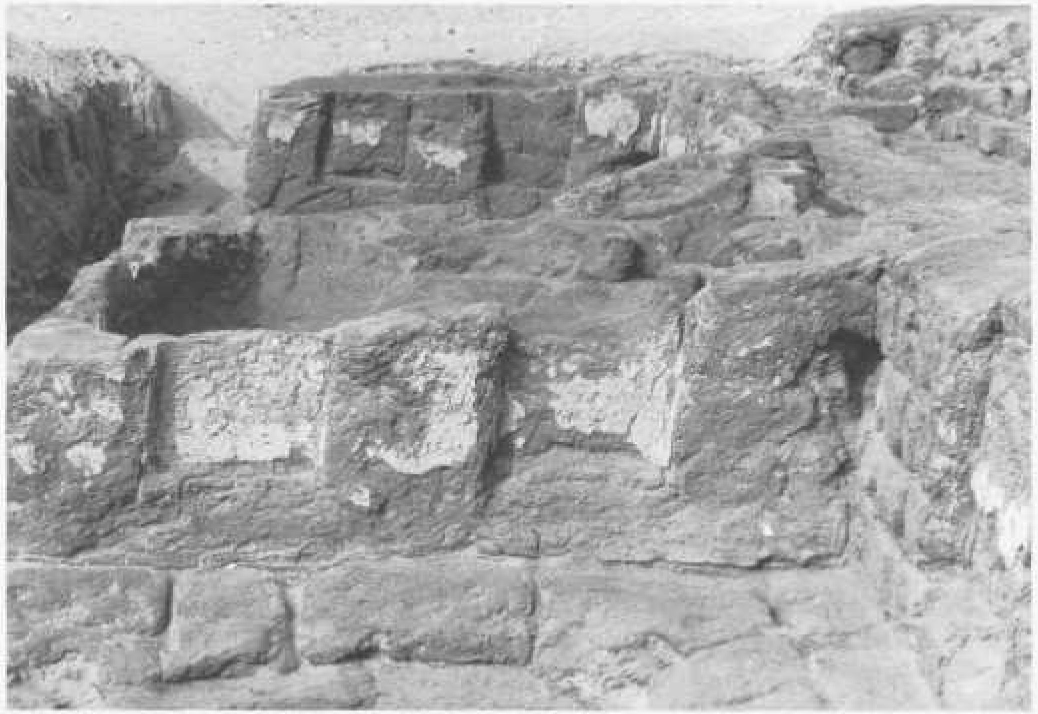
Pl. 120d. Remains of the gatehouse (foreground) and gate (background) in the later south outer enclosure wall, facing southeast. Photo A.O. (DH 93:15).



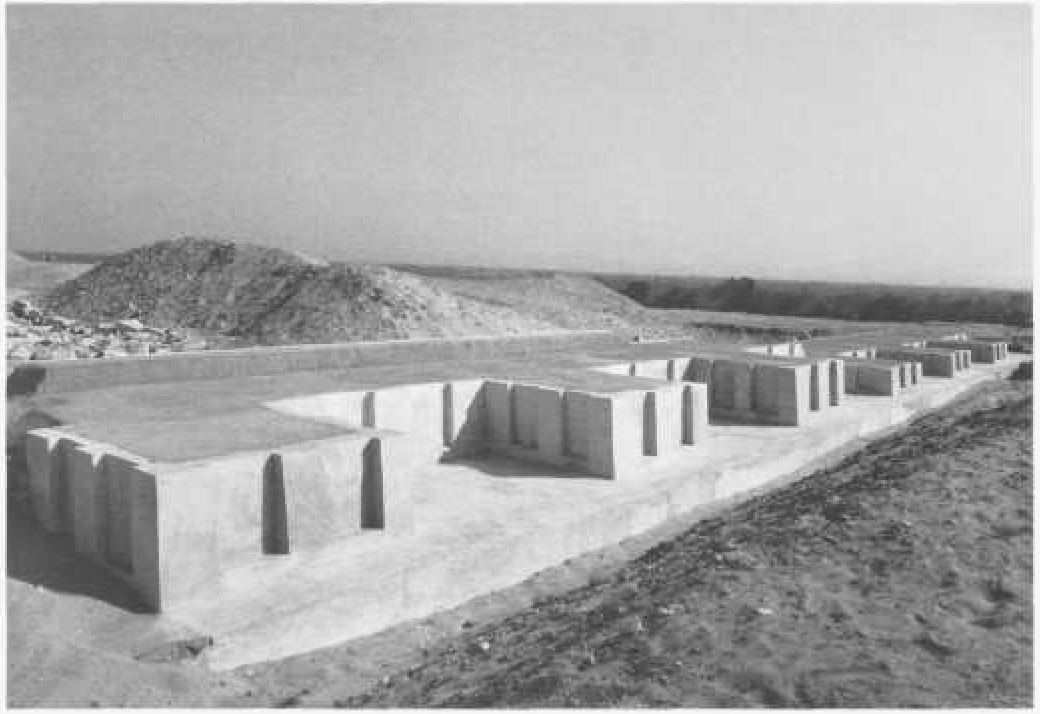
Pl. 121a. Projection 7 of the original south outer enclosure wall (left) dismantled for the construction of the entrance passage between the south temple and the pyramid court, facing north. Photo A.O. (DH 92:13).



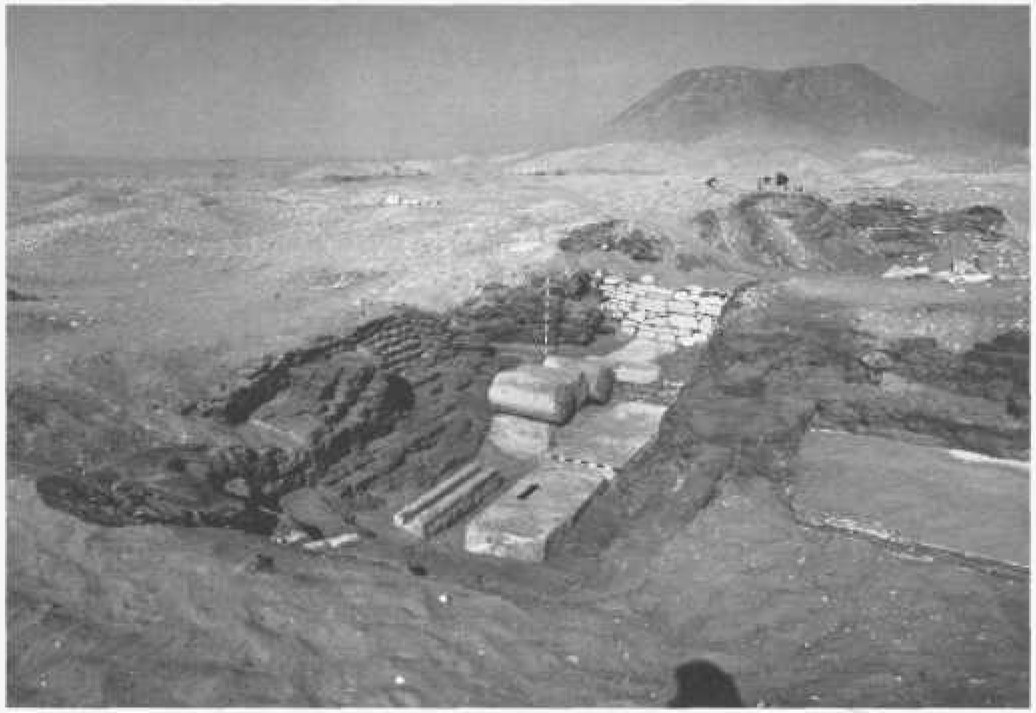
Pl. 121b. Remains of projections 11–13 in the later south outer enclosure wall, facing north. Photo A.O. (DH 92:2).



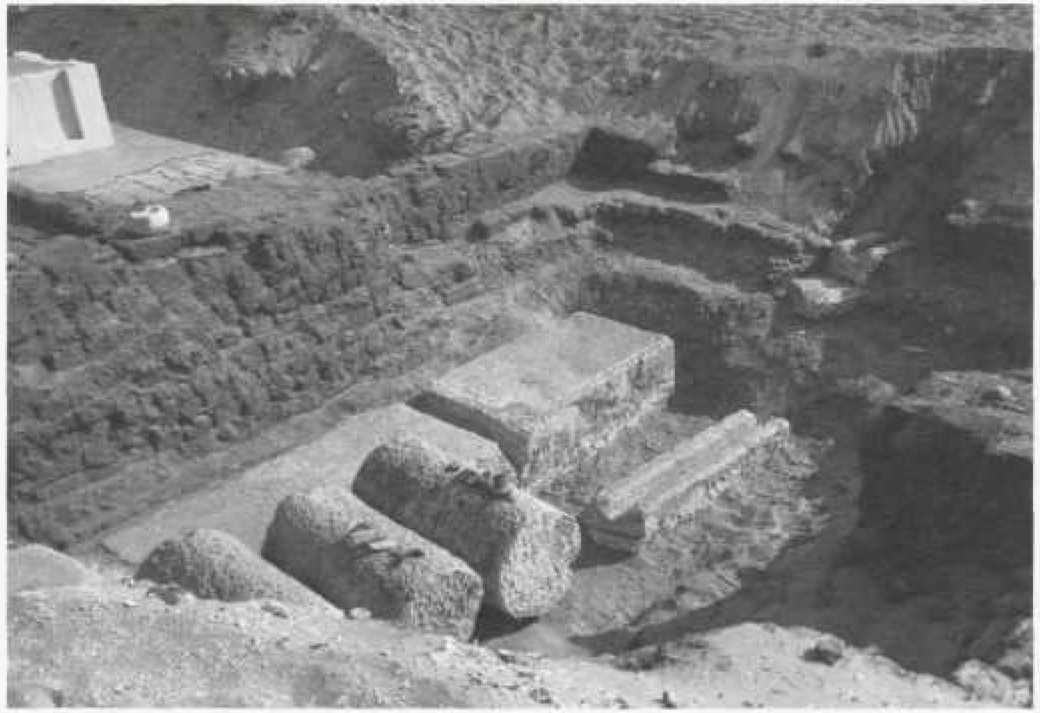
Pl. 121c. Remains of projections 12 and 13 in the later south outer enclosure wall, facing west. Photo D.A. (DH 92:384).



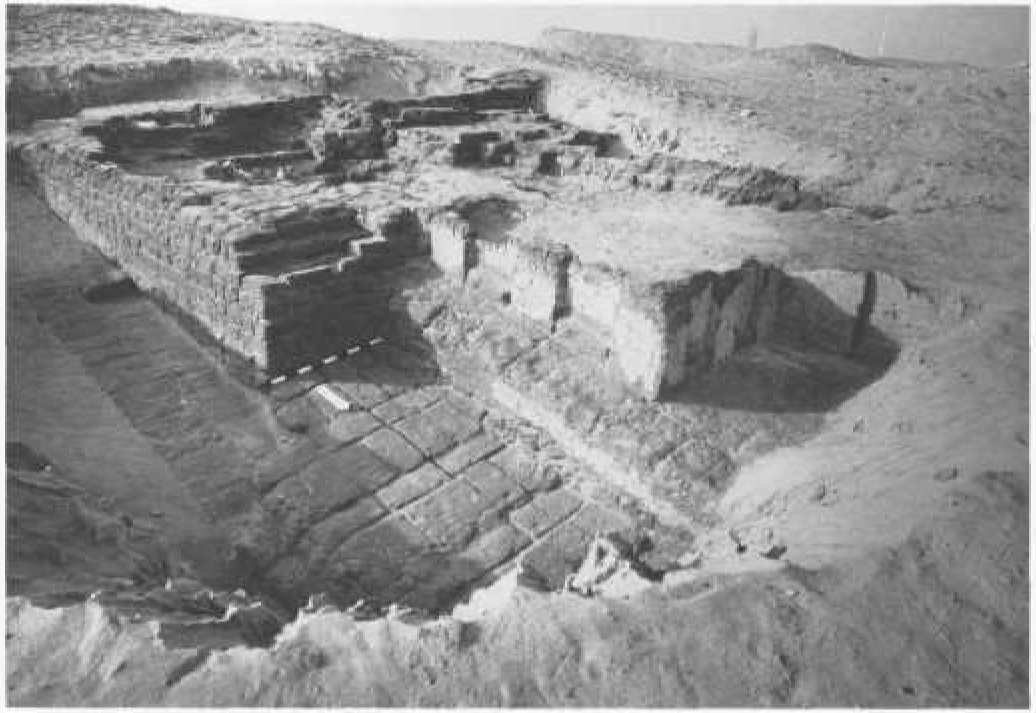
Pl. 121d. Restored lower section of the later south outer enclosure wall, facing northeast. Photo A.K. (DH 98:33/32–35).



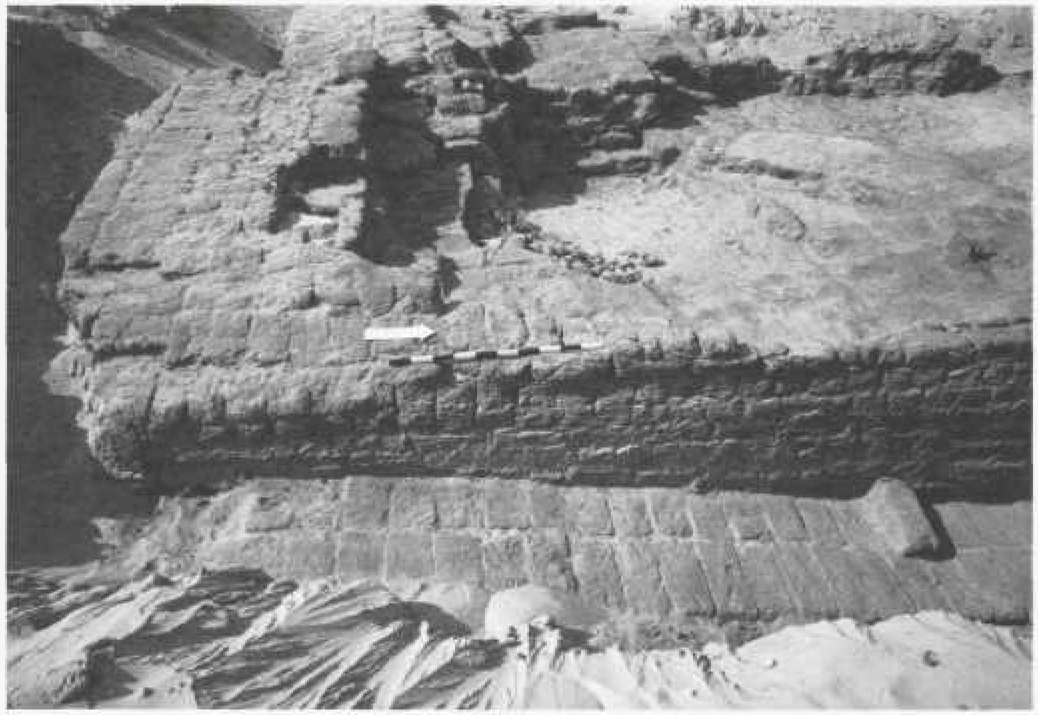
Pl. 122a. Remains of the drain through the later south outer enclosure wall, facing north. Photo A.O. (DH 92:39).



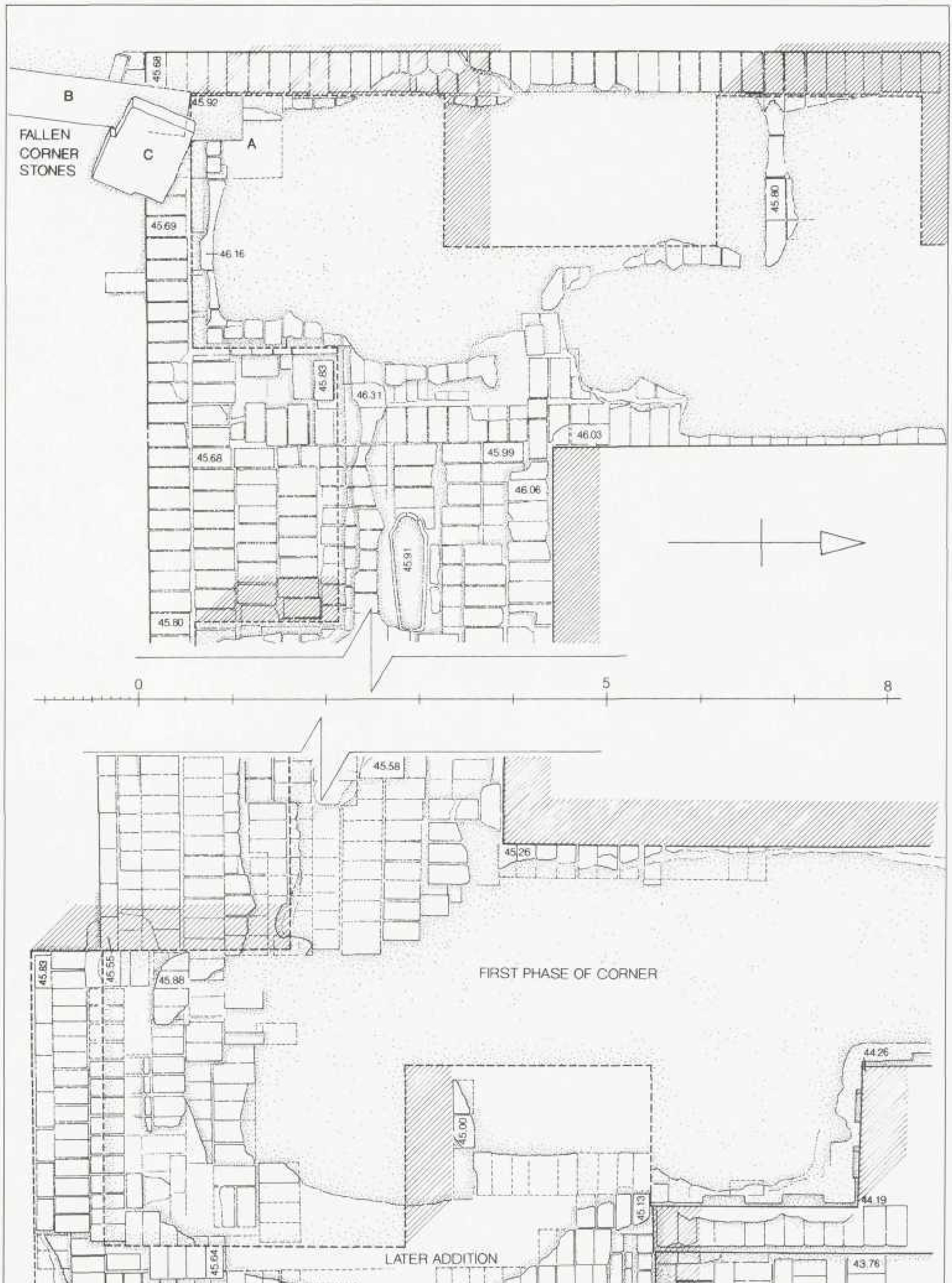
Pl. 122b. Remains of the drain through the later south outer enclosure wall, facing southeast. The unfinished columns were cut from blocks from the south temple. Photo G.D. (DH 90:465).



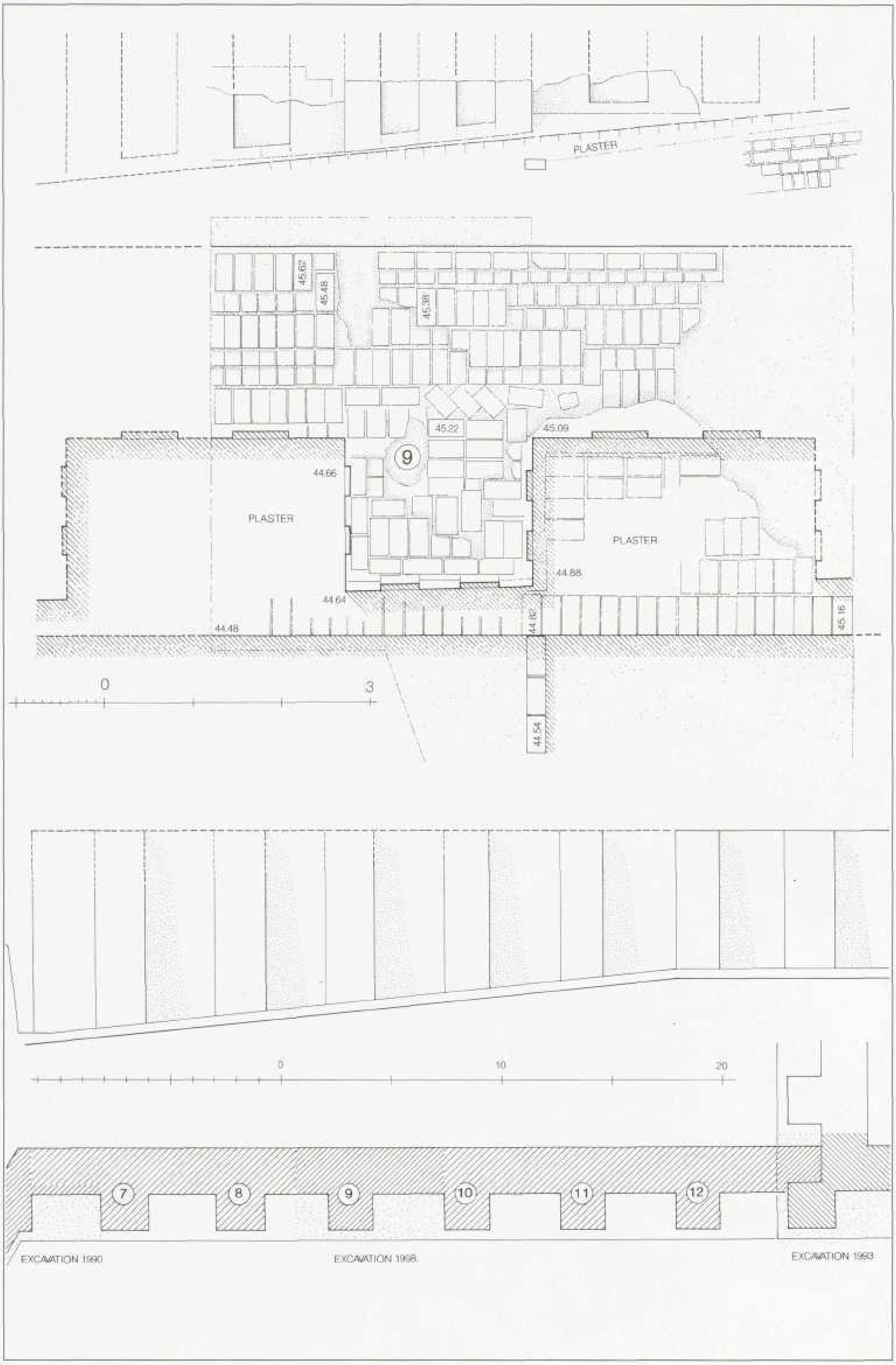
Pl. 122c. Southeast corner of the later outer enclosure wall with the later addition (left), facing southwest. Photo G.D. (DH 90:165).



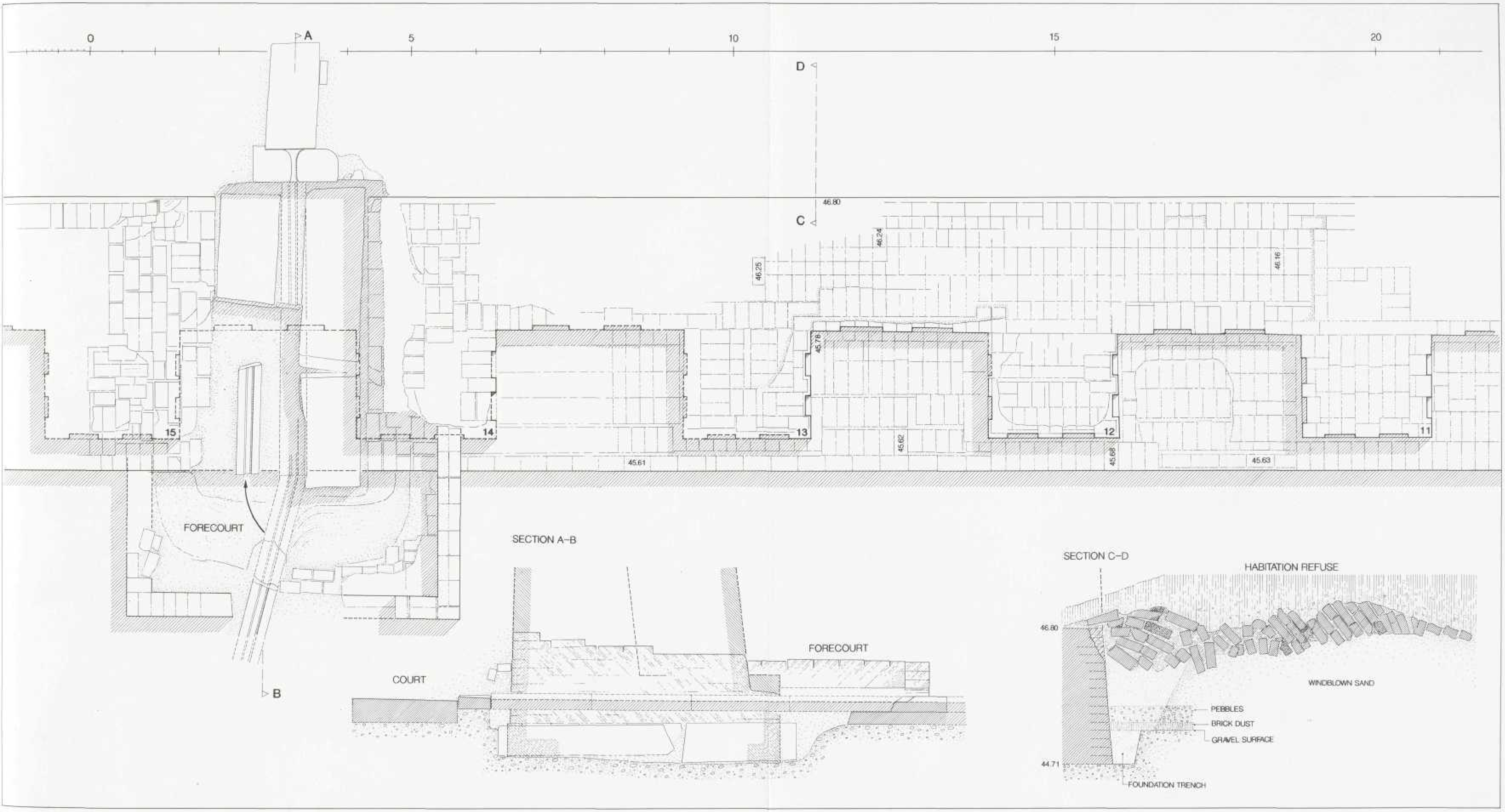
Pl. 122d. Later addition and sloping exterior pavement at the southeast corner of the later outer enclosure wall. Photo G.D. (DH 90:164).



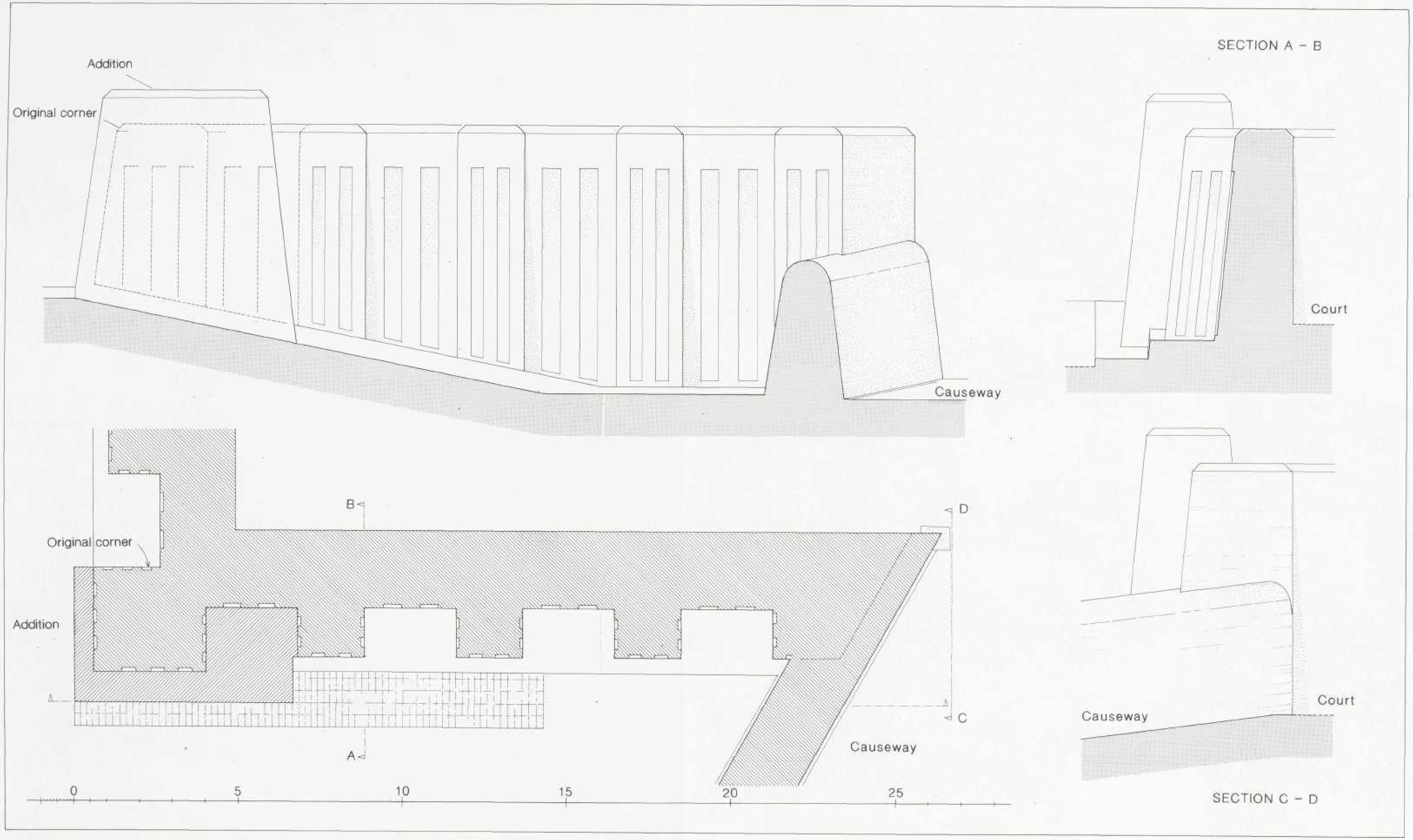
Pl. 123. Upper: Plan of the southwest corner of the later outer enclosure wall. Scale 1:50. Drawing D.A. from drawing by D.C.
Lower: Plan of the southeast corner of the later outer enclosure wall. Scale 1:50. Drawing D.A.



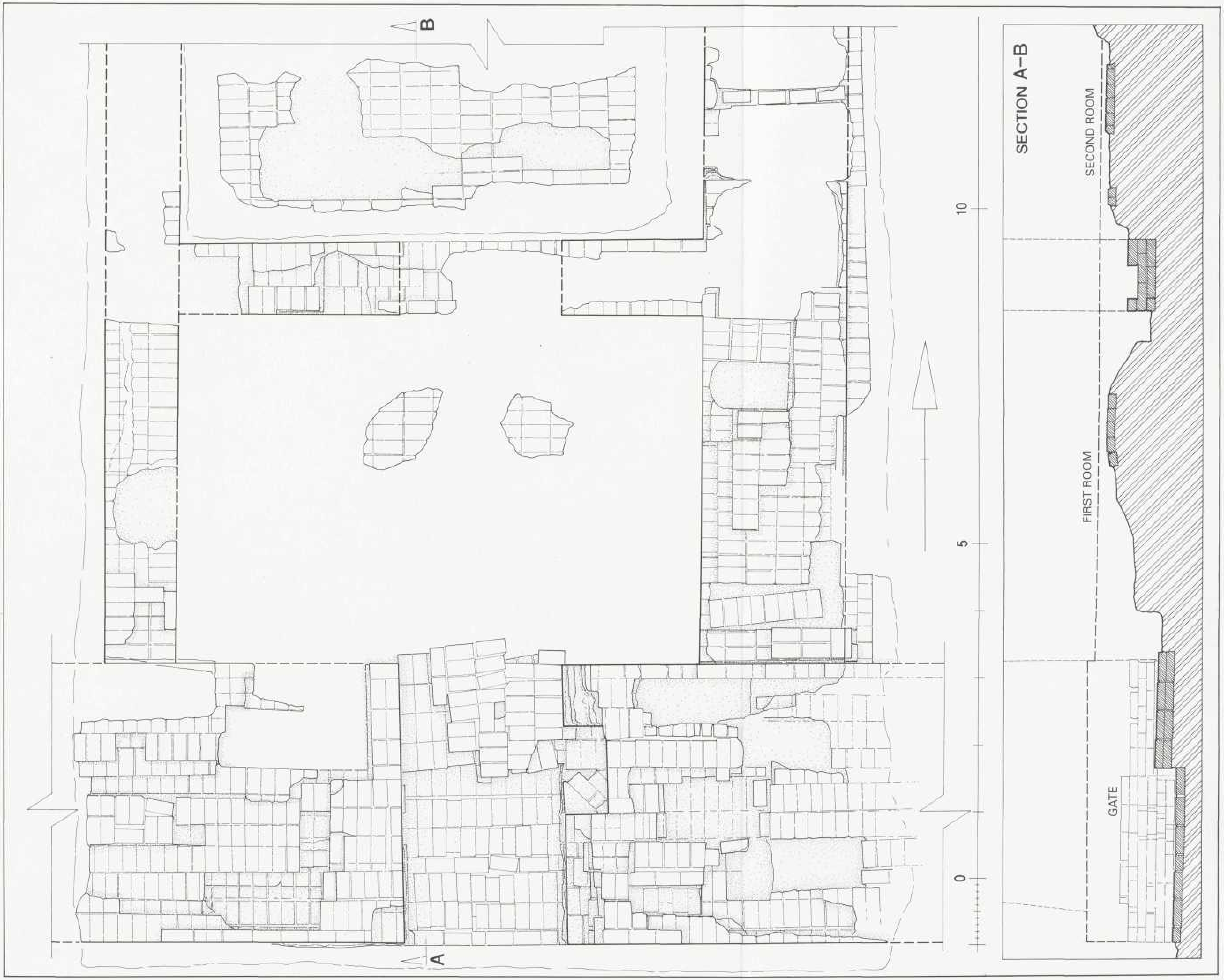
Pl. 124. Later east outer enclosure wall. Upper: Elevation and plan of projection 9. Lower: Reconstructed elevation and plan of projections 7–12. Scales 1:50 and 1:200. Drawings D.A.



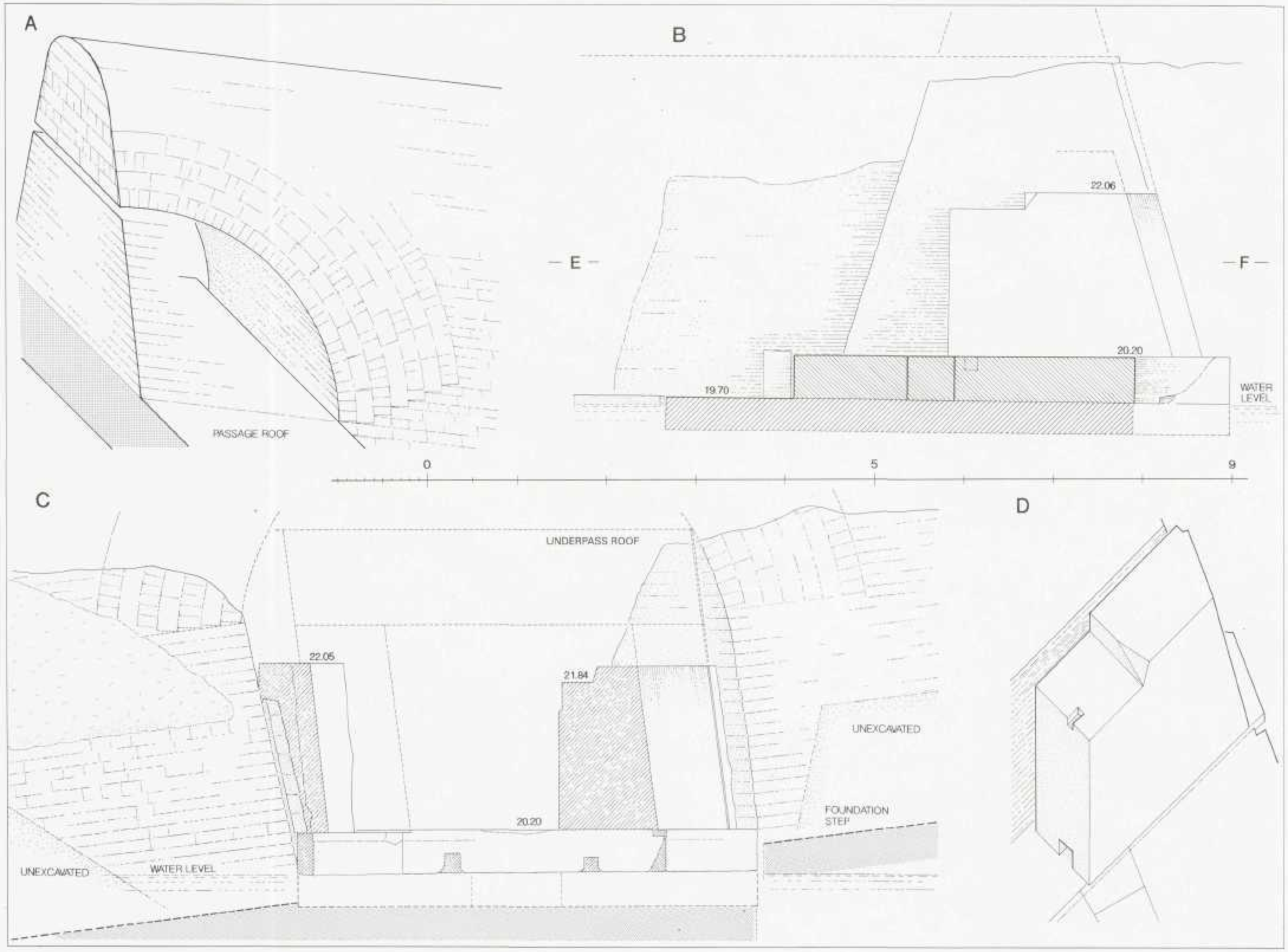
Pl. 125. Plan and sections of part of the later south outer enclosure wall, with the drain system between projections 14 and 15. Section C–D shows wall that collapsed in an earthquake. Scale 1:50. Drawings D.A. from drawings by R.T.



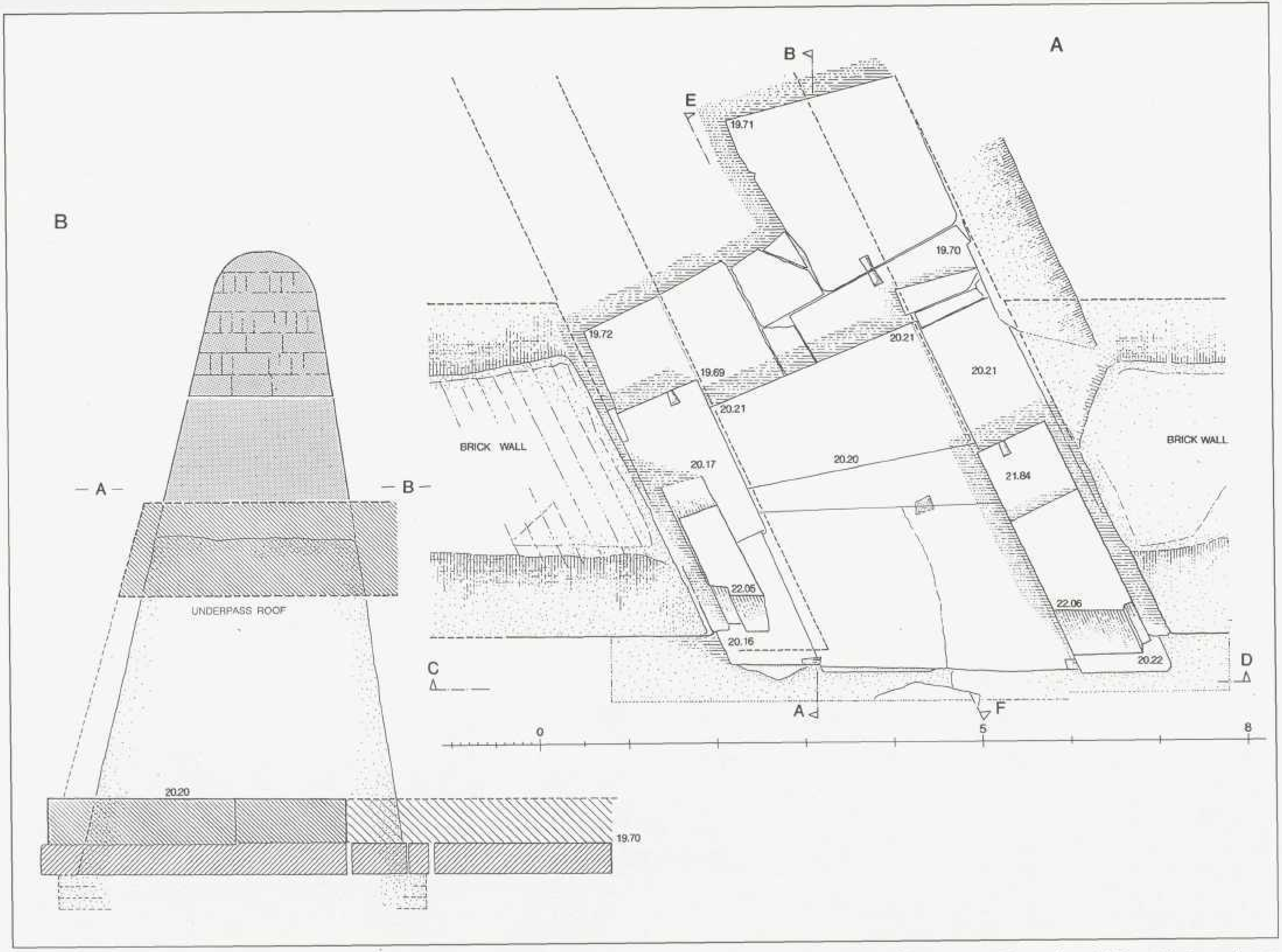
Pl. 126. Reconstructed elevations, sections, and plan of the southeast corner of the later outer enclosure wall and south side of the causeway. Scale 1:100. Drawing D.A.



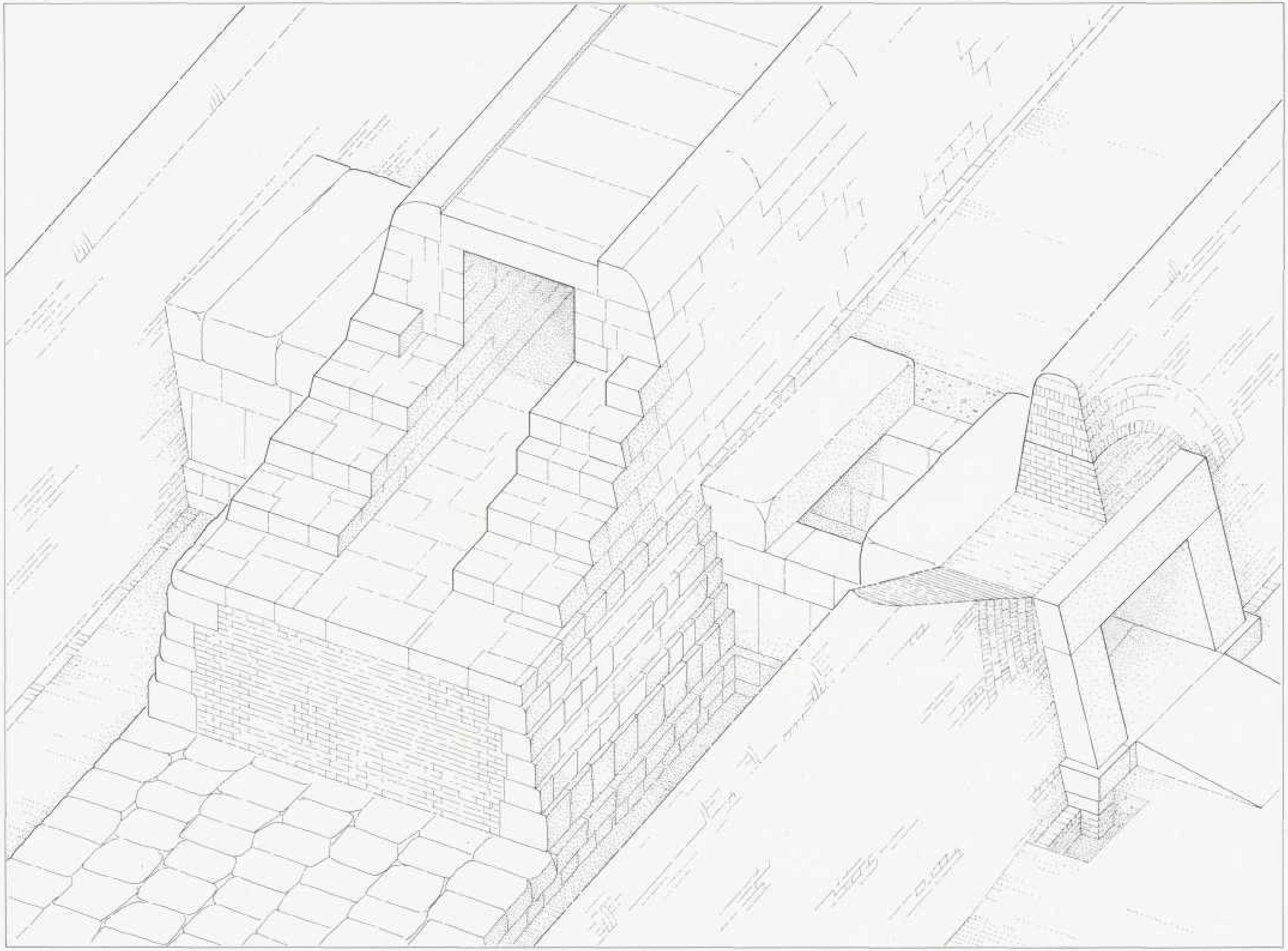
Pl. 127. Plan and section of the gate and gatehouse in the later south outer enclosure wall. Scale 1:50. Drawings R.V. from drawings by R.T. and D.A.



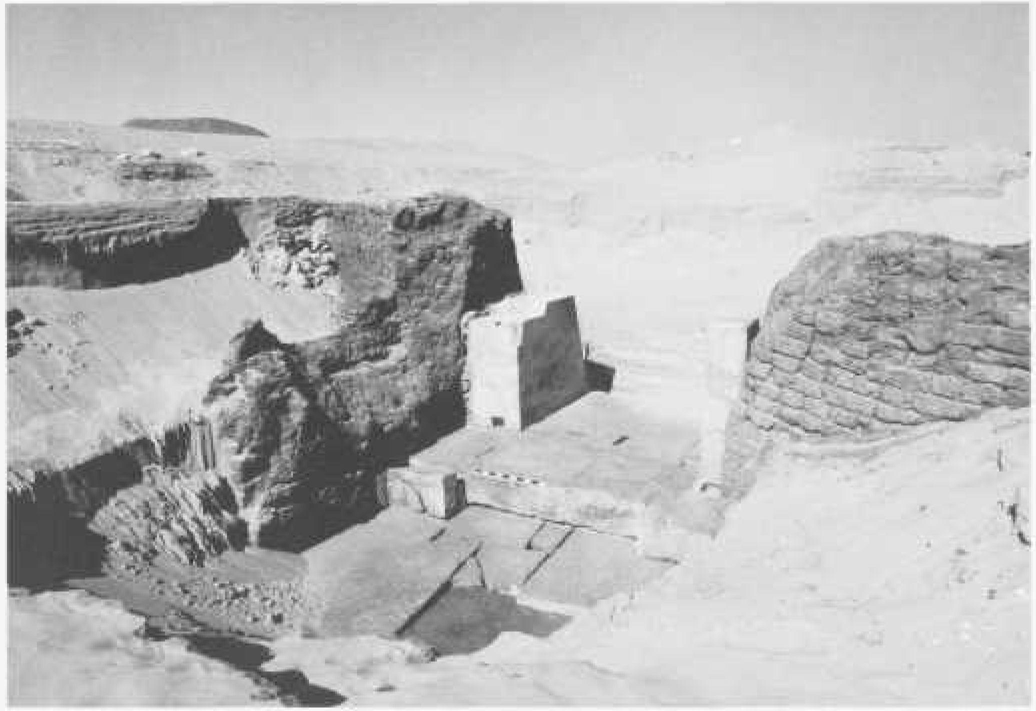
Pl. 128. The north entrance to the underpass under the causeway. *A)* Reconstruction of the brick discharging arch. *B)* South-north section (E–F) of the entrance. *C)* East-west elevation (C–D) of the entrance. *D)* Isometric view of the west doorjamb. For locations of the sections and elevation, see pl. 129. Scale 1:50. Drawings D.A. from drawings by R.T.



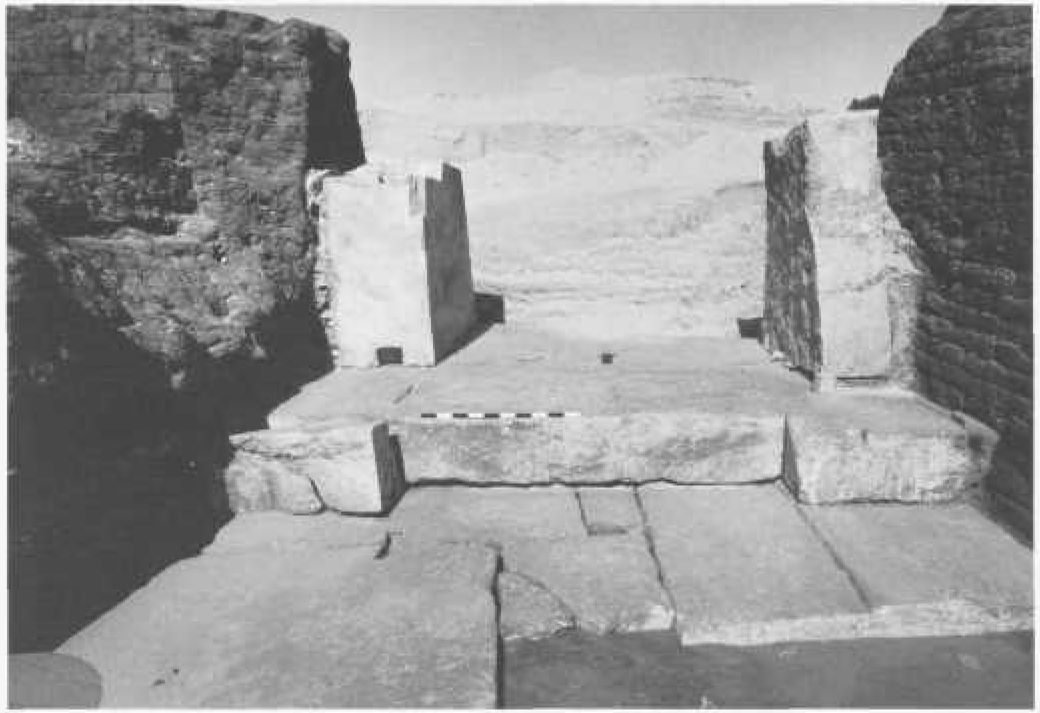
Pl. 129. The north entrance to the underpass under the causeway. *A)* Plan of the entrance. *B)* North-south section (A–B) of the entrance. For sections C–D and E–F, see pl. 128. Scale 1:50. Drawings D.A. from drawings by R.T.



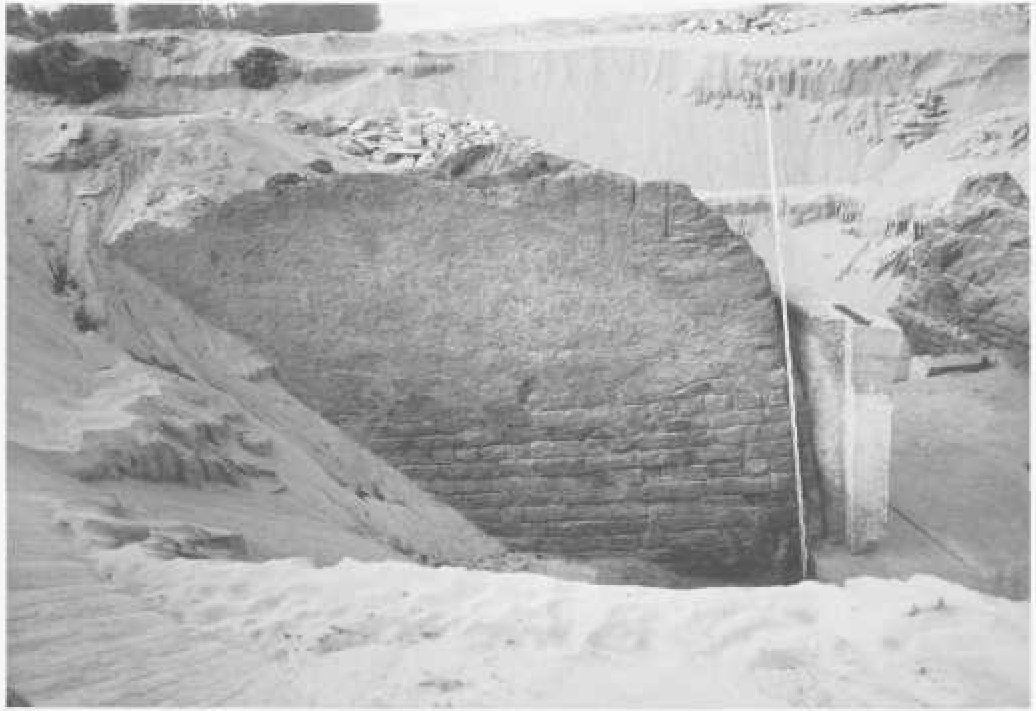
Pl. 130. Reconstructed isometric view of the causeway and its underpass, facing southwest. No scale. Drawing D.A.



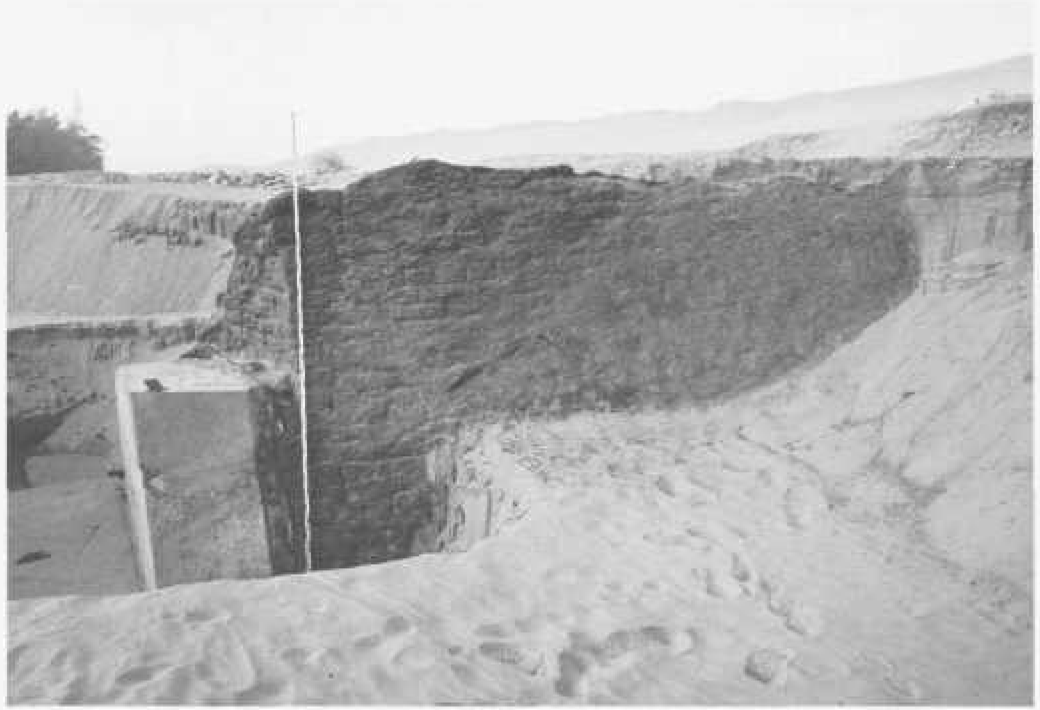
Pl. 131a. North side of the stone-lined underpass in the causeway, facing northwest. Photo A.O. (DH 92:24).



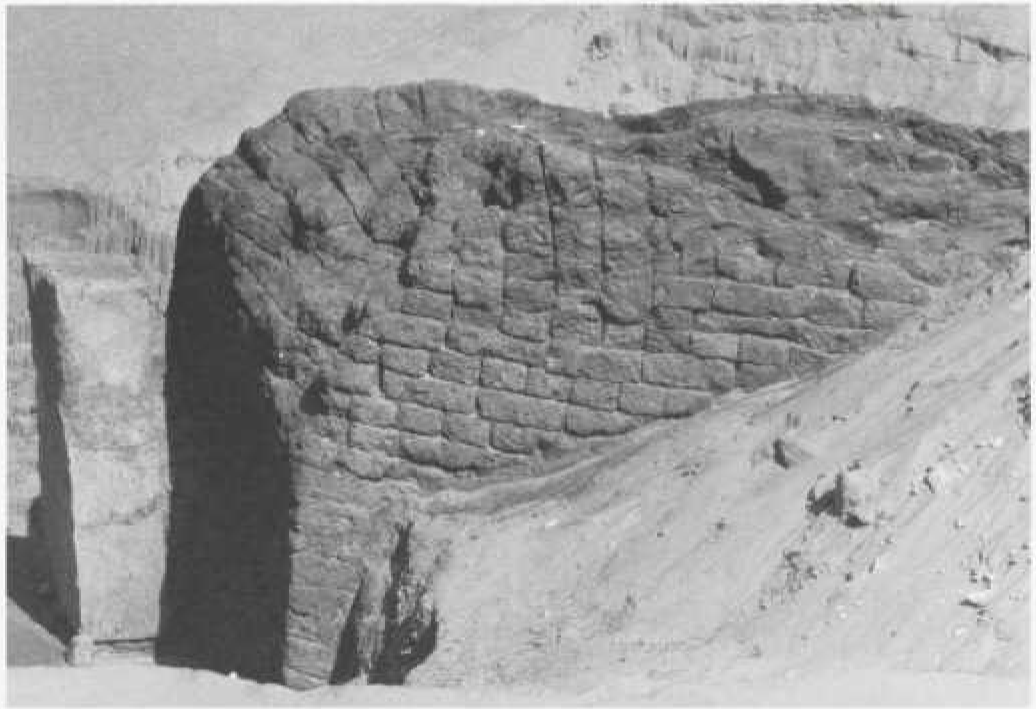
Pl. 131b. North side of the stone-lined underpass in the causeway, facing north. Photo A.O. (DH 92:23).



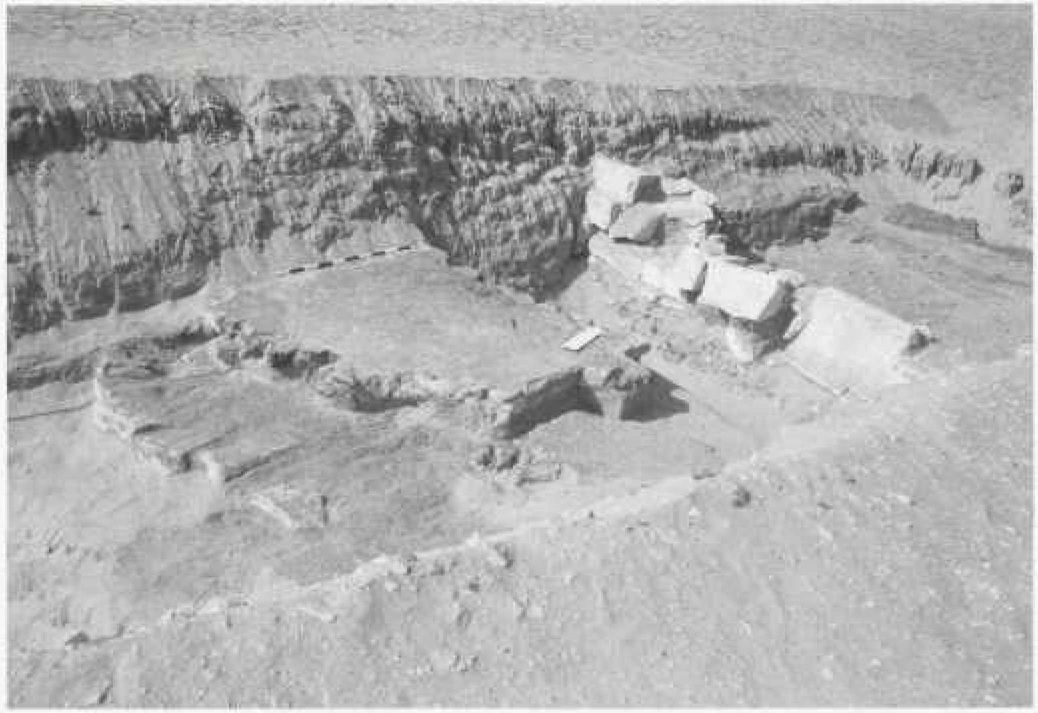
Pl. 131c. Underpass in the north wall of the causeway. Flanking brick wall east of the underpass with impost of vault, facing south. Photo A.O. (DH 92:36).



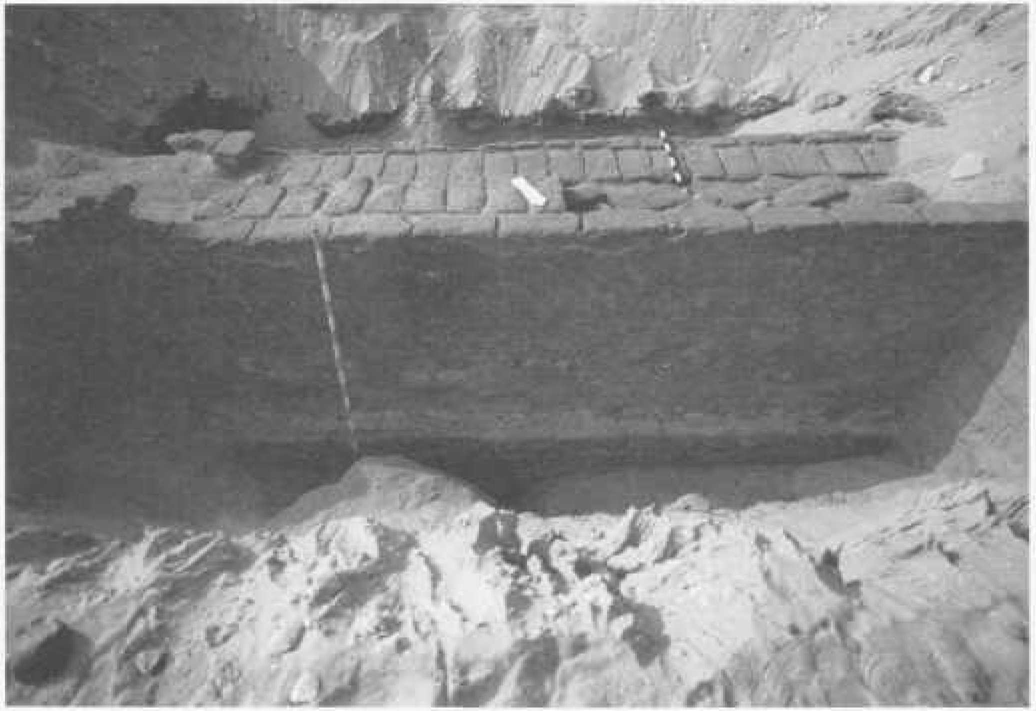
Pl. 131d. Underpass in the north wall of the causeway. Flanking brick wall west of the underpass with impost of vault, facing south. Photo A.O. (DH 92:37).



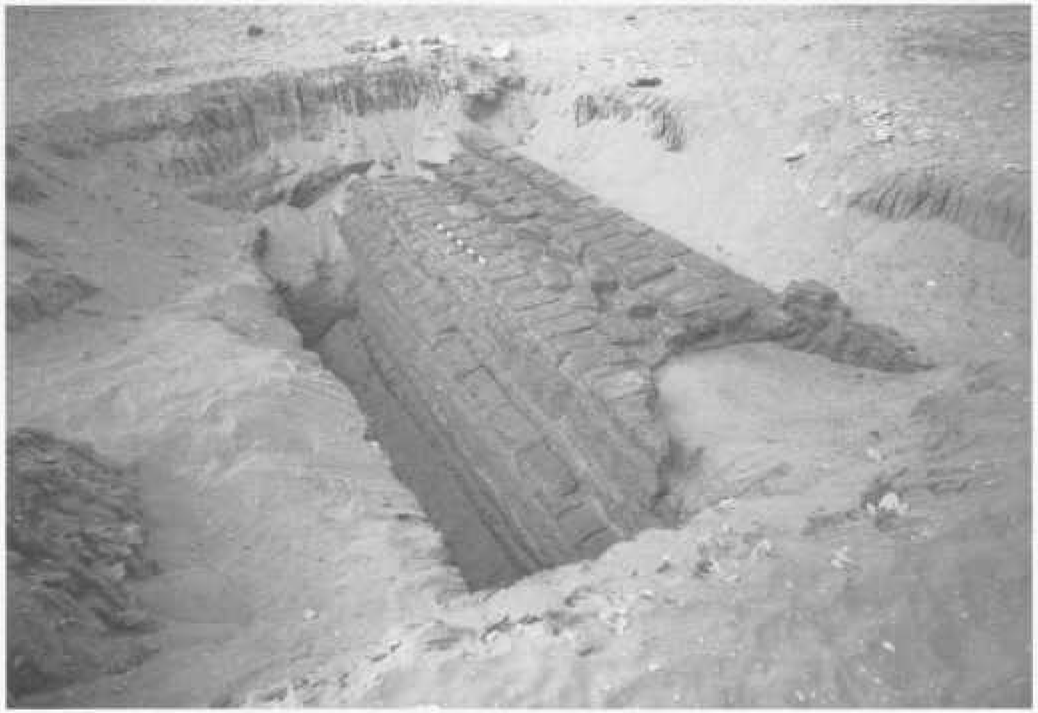
Pl. 132a. Underpass in the north wall of the causeway with the eastern impost of the brick vault. Photo D.A. (DH 92:432).



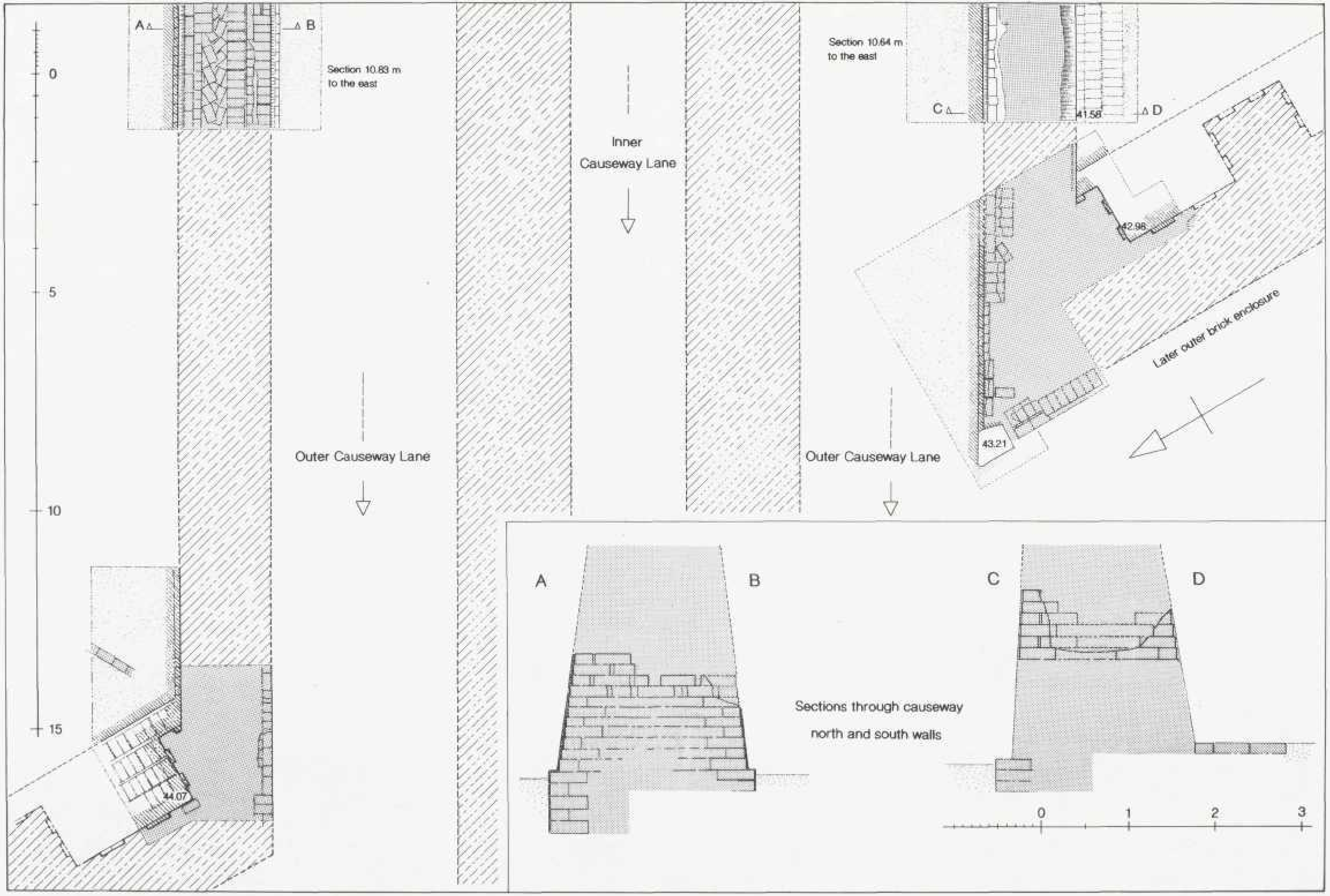
Pl. 132b. Causeway section V with scant remains of the flanking north brick wall, facing north. Photo A.O. (DH 92:78).



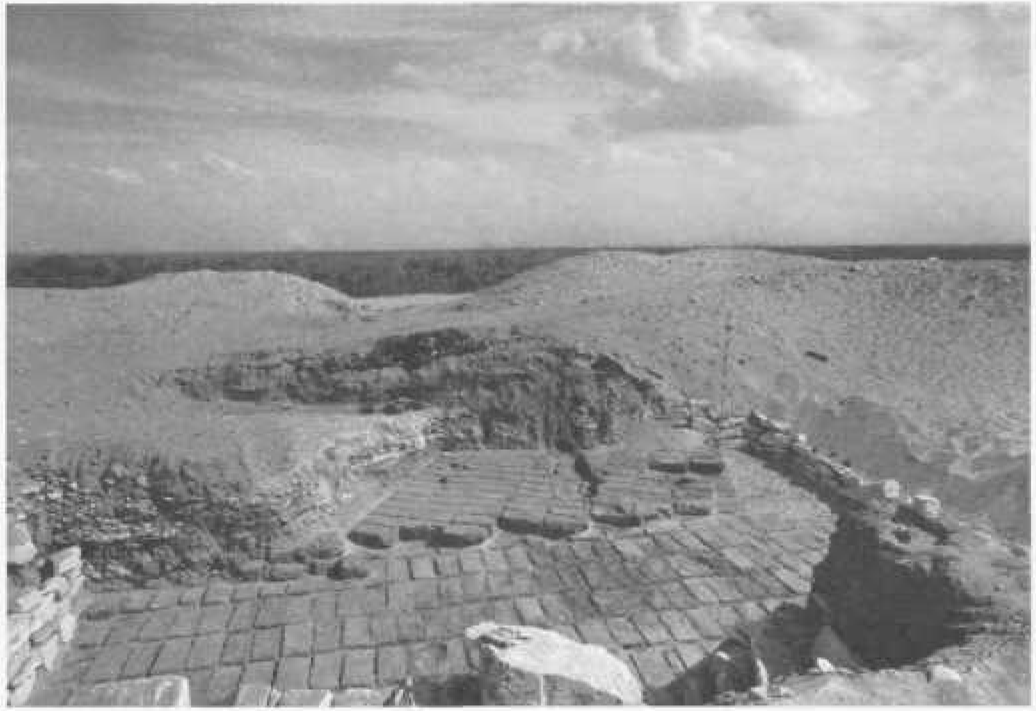
Pl. 132c. Causeway section II with flanking north wall, facing south. Photo G.D. (DH 90:166).



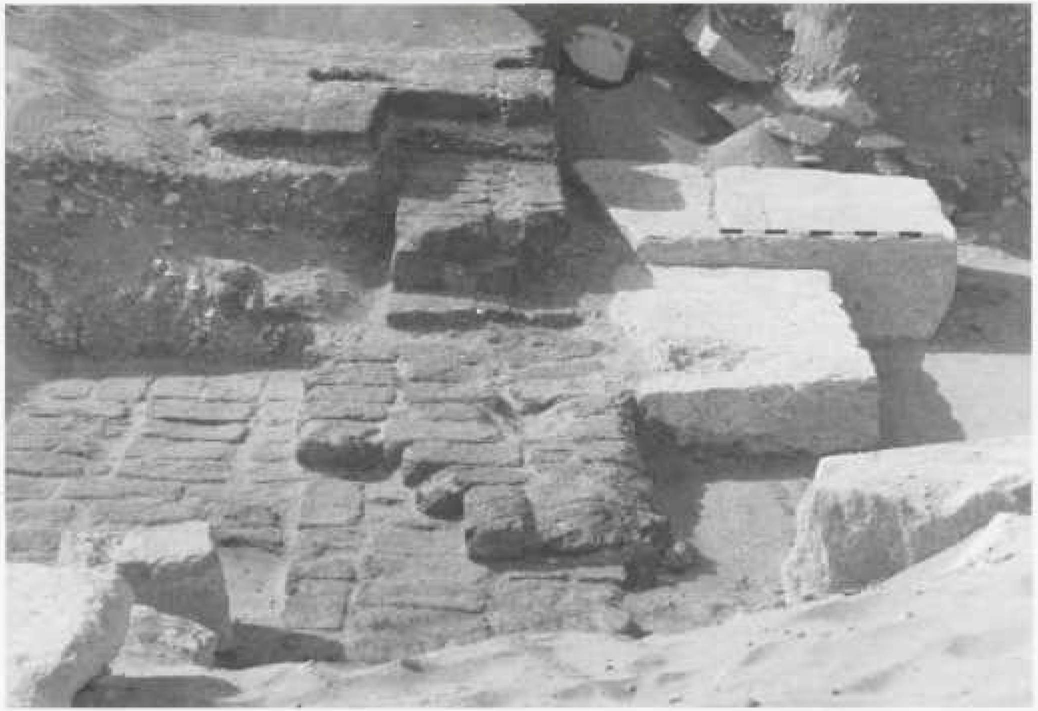
Pl. 132d. Causeway section II with flanking north wall, facing northwest. Photo G.D. (DH 90:99).


0
5
10
15
A
B
Section 10.83 m to the east
Inner Causeway Lane
Outer Causeway Lane
Section 10.64 m to the east
C
D
41.56
42.98
43.21
44.07
Later outer brick enclosure
Outer Causeway Lane
A
B
C
D
Sections through causeway north and south walls
0
1
2
3

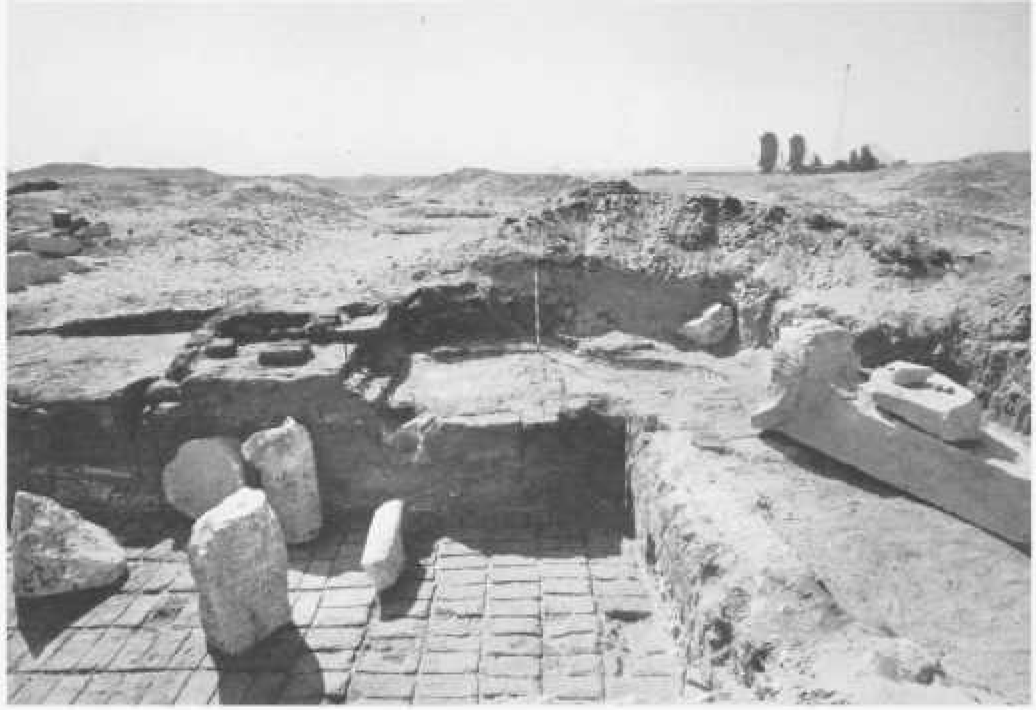
Pl. 133. Plans and sections of the upper end of the causeway, and the juncture of the causeway and the later east outer enclosure wall. Scale 1:100 and 1:50. Drawings D.A. from drawings by F.A.



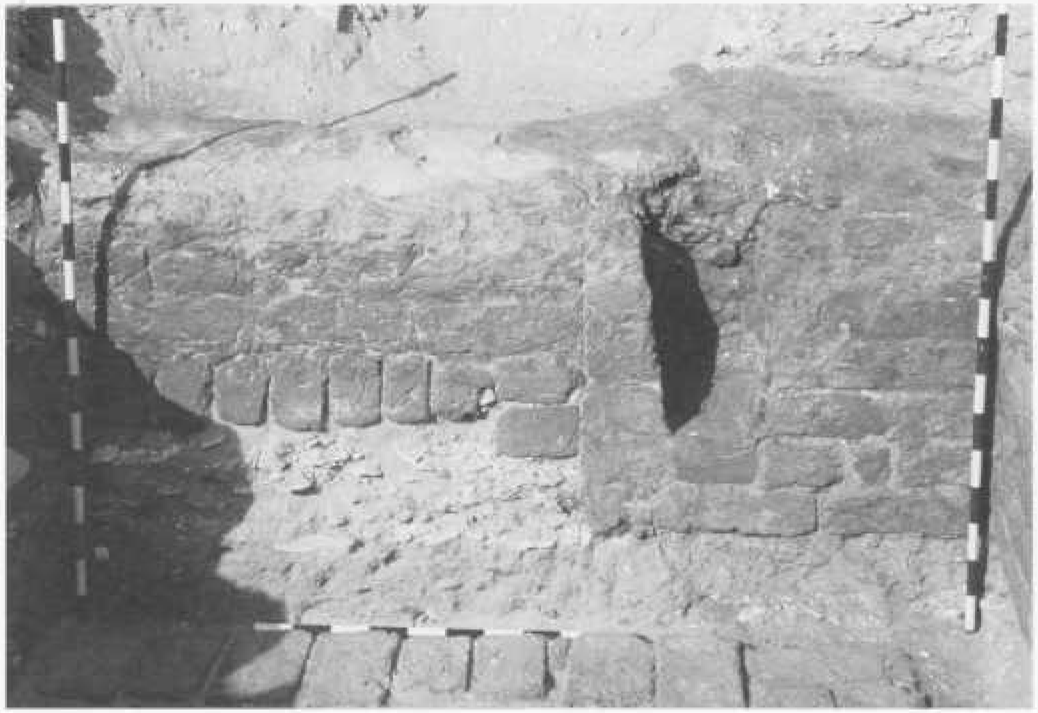
Pl. 134a. Juncture of the subfoundations of the south temple and causeway, facing east. Photo A.O. (DH 93:9).



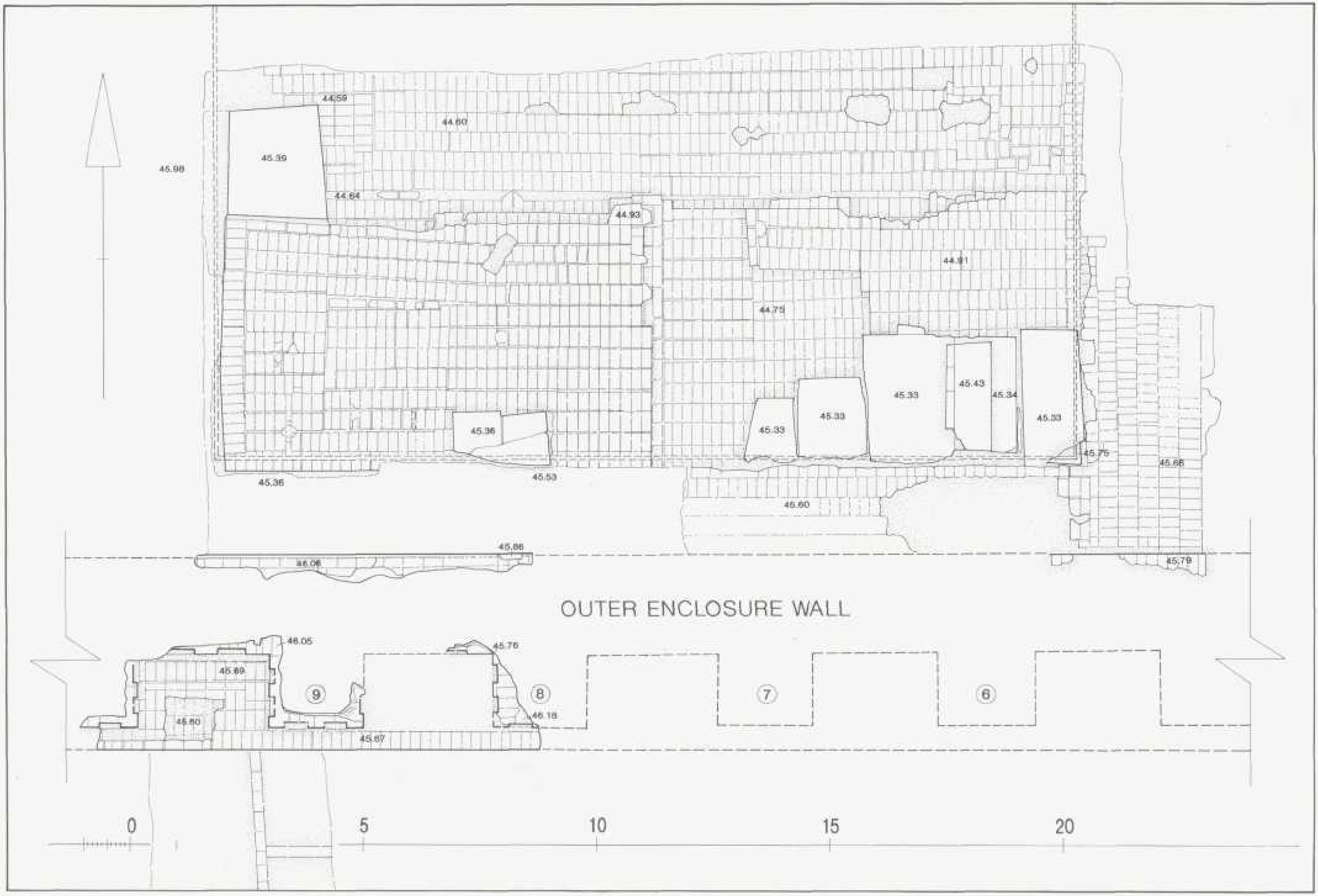
Pl. 134b. Brick subfoundation and foundation blocks at the juncture of the "palace" (left) and the main area of the south temple (right), facing west. Photo D.A. (DH 92:475).



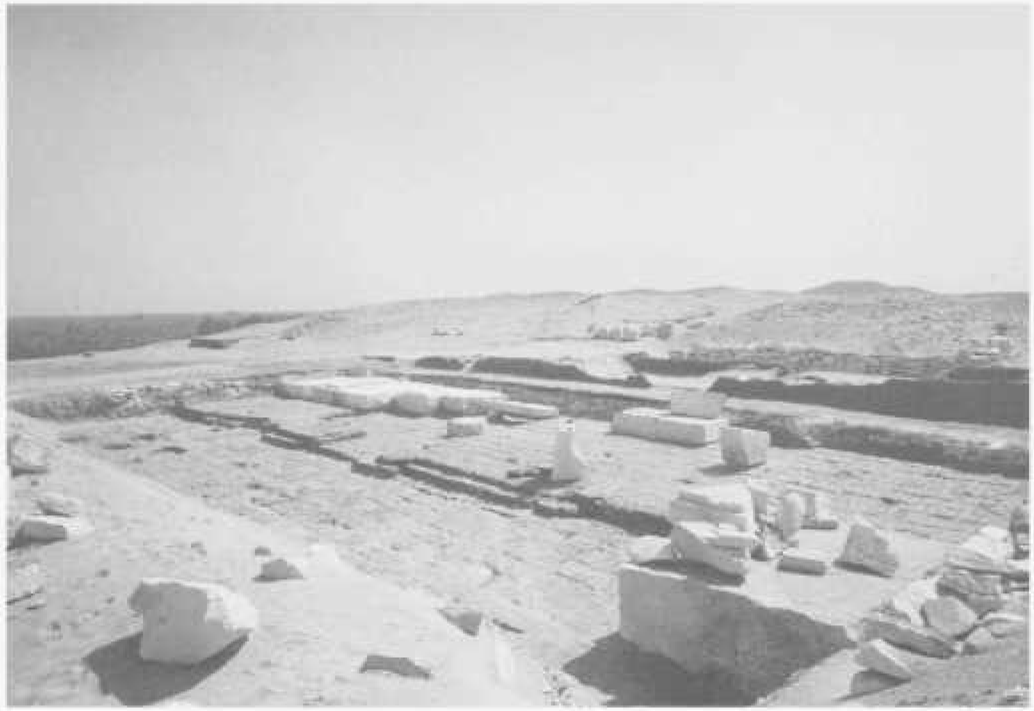
Pl. 134c. Southwest corner of the south temple subfoundation, facing south. Photo A.O. (DH 93:5).



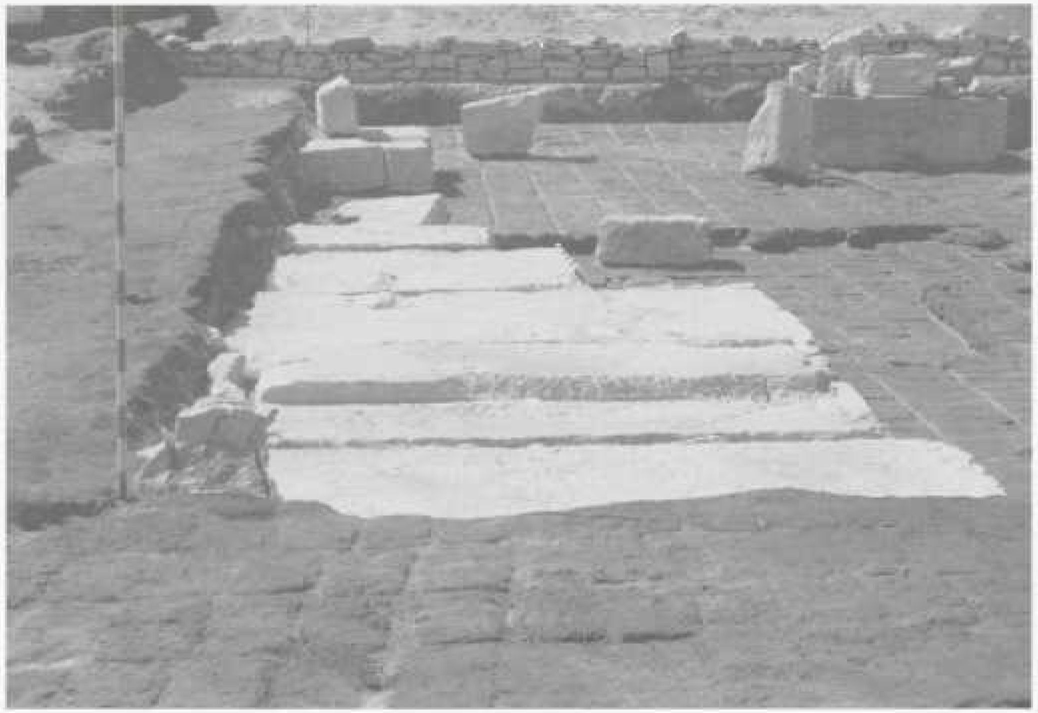
Pl. 134d. The north end of the west side of the retaining wall for the ancient excavation of the foundation of the south temple, facing west. To the right of center is a semicircular hole for a measuring pole. Photo D.A. (DH 93:551).



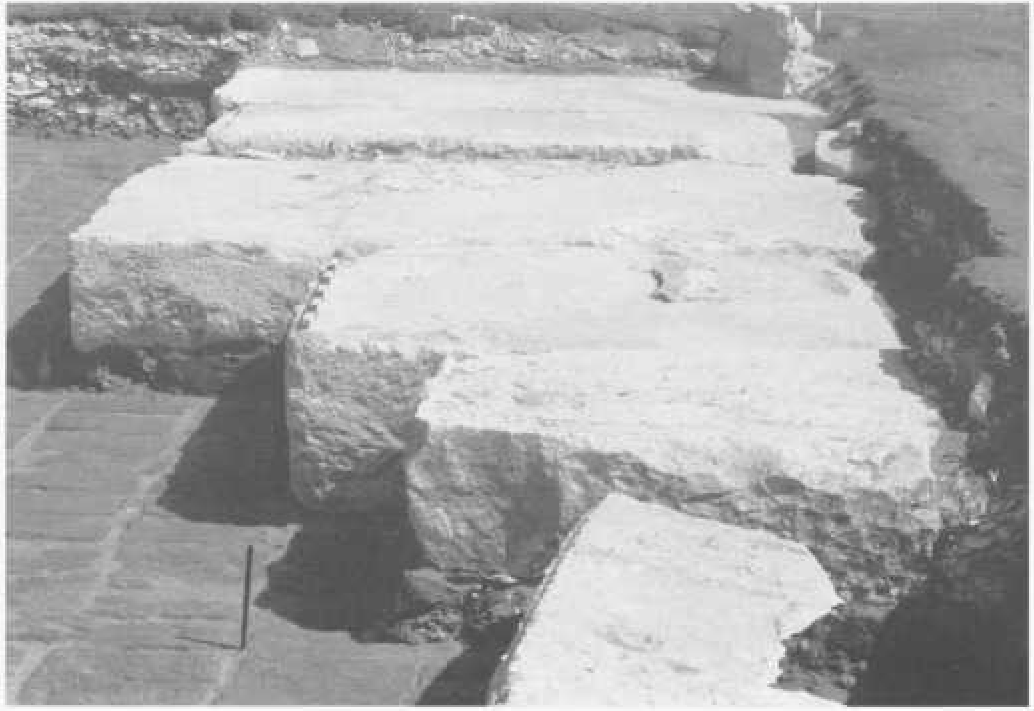
Pl. 135. Plan of the south temple "palace" area and the later south outer enclosure wall. Scale 1:100. Drawing R.V. from drawing by D.A.



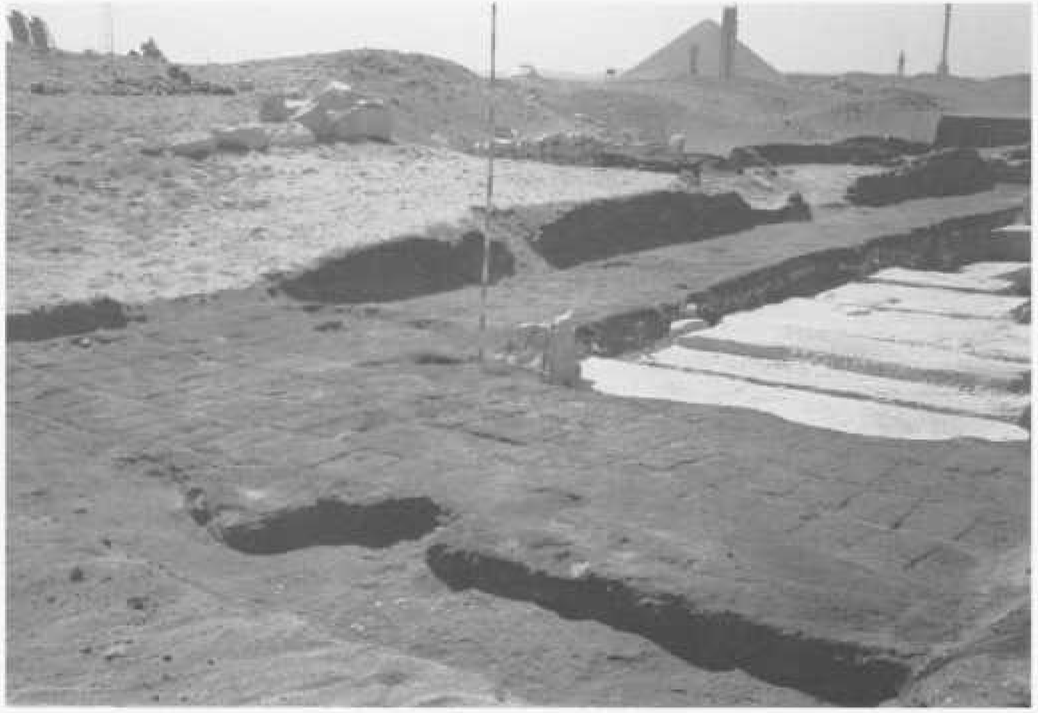
Pl. 136a. South temple "palace" area with later south outer enclosure wall behind, facing southeast. Photo A.O. (DH 94:25).



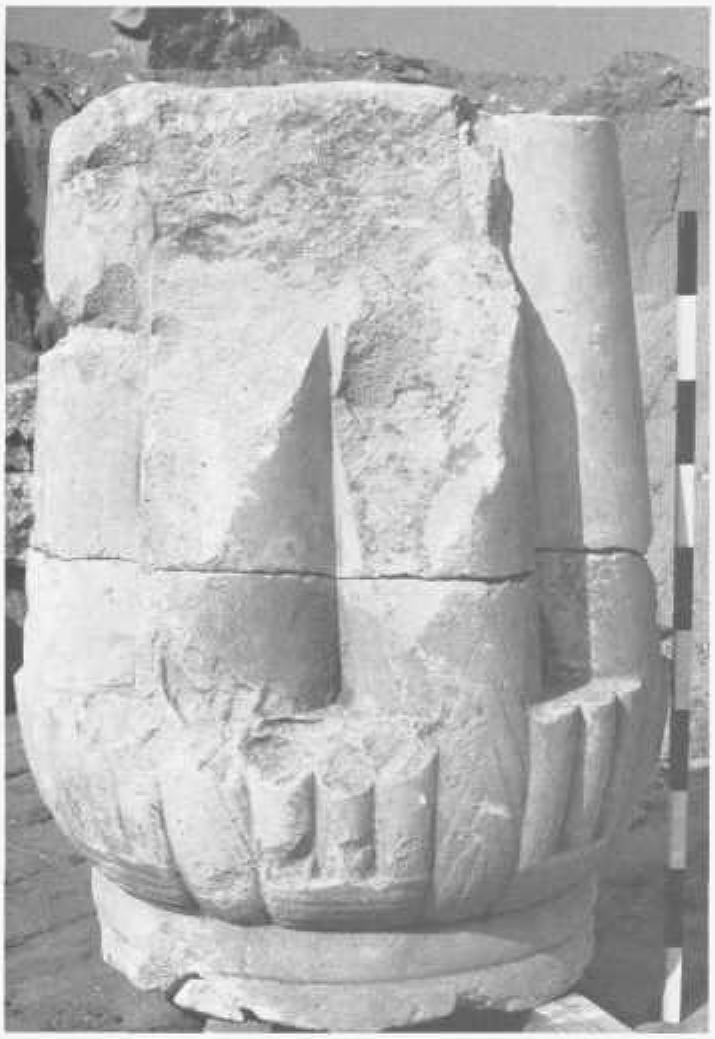
Pl. 136b. Foundation blocks in the south temple "palace" area, facing west. Photo D.A. (DH 94:602).



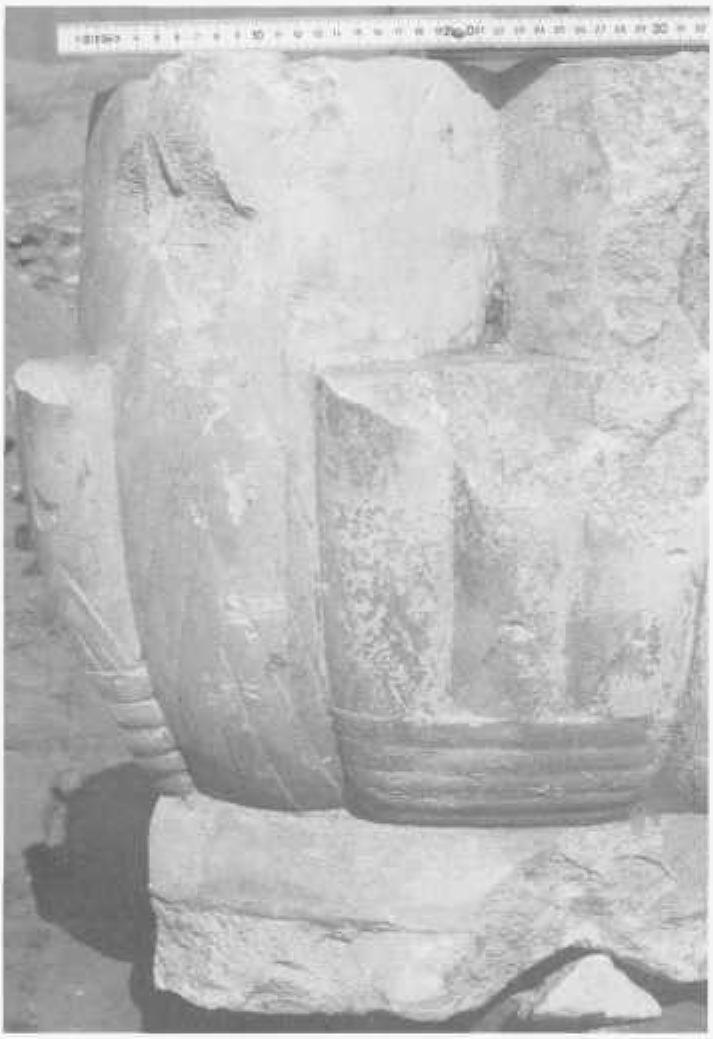
Pl. 136c. Foundation blocks in the south temple "palace" area, facing east. Photo D.A. (DH 94:608).



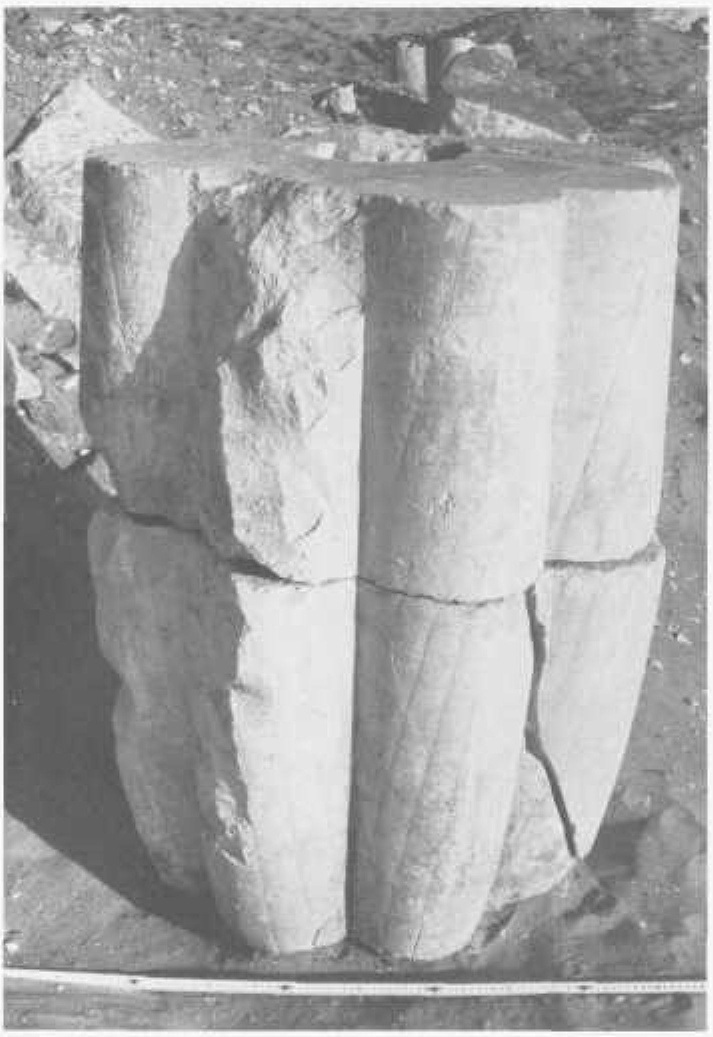
Pl. 136d. South temple "palace" area, with remains of the southeast cornerstone in the center, facing southwest. Photo D.A. (DH 94:603).



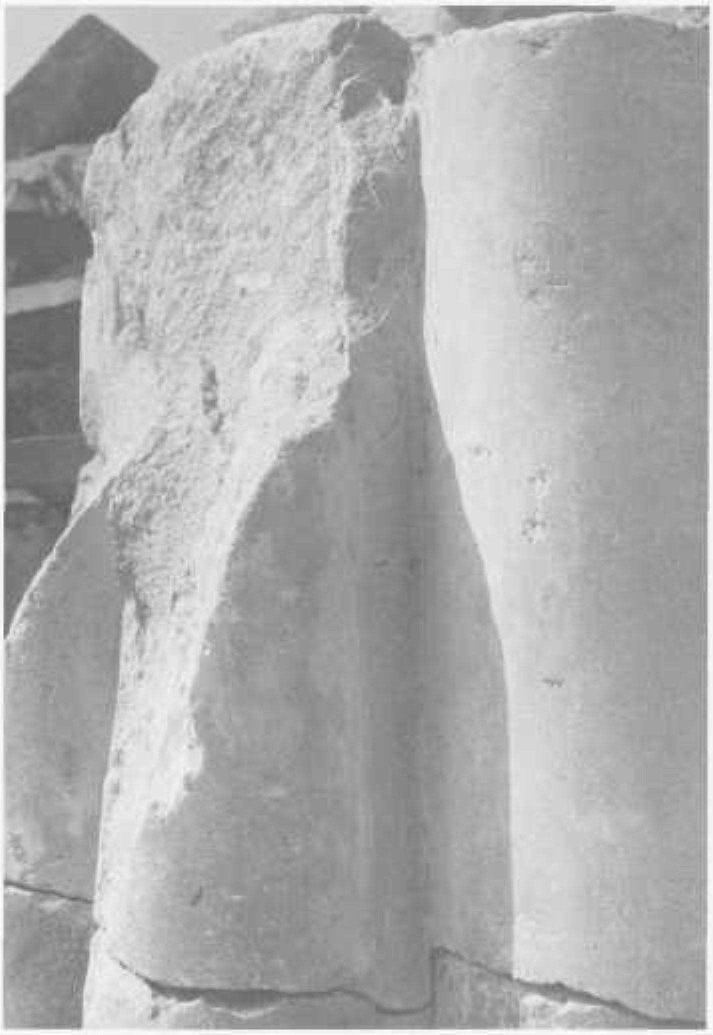
Pl. 137a. Capital of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:133).



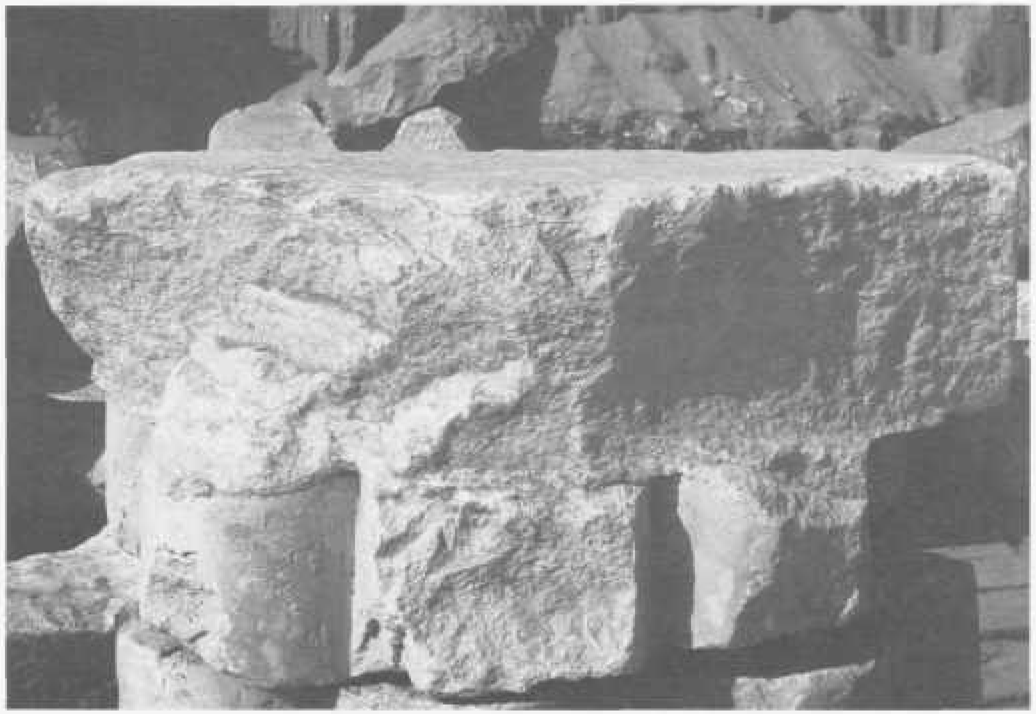
Pl. 137b. Detail of a capital of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:132).



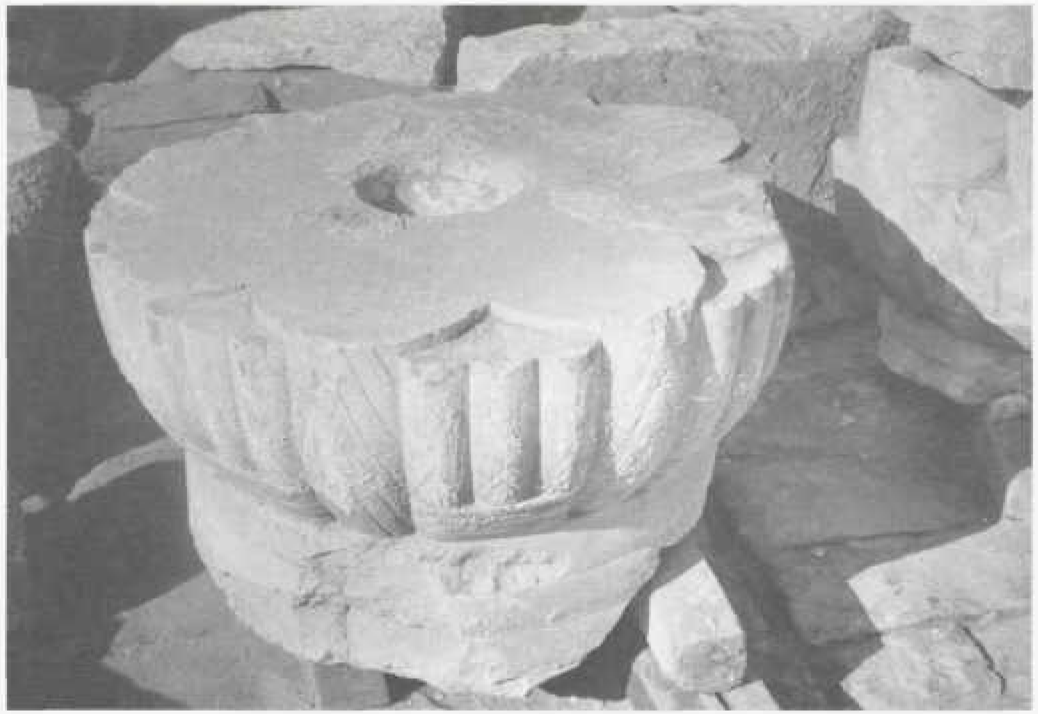
Pl. 137c. Lower end of the shaft of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:225).



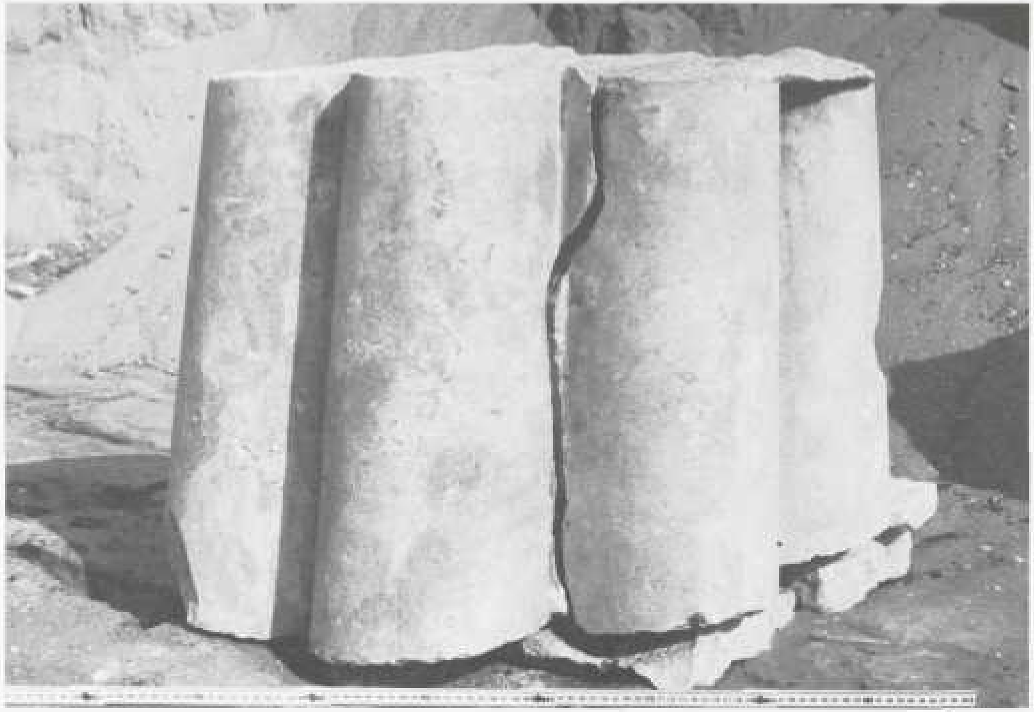
Pl. 137d. Detail of a papyrus-bundle capital with patches from the south temple. Photo A.O. (DH 92:134).



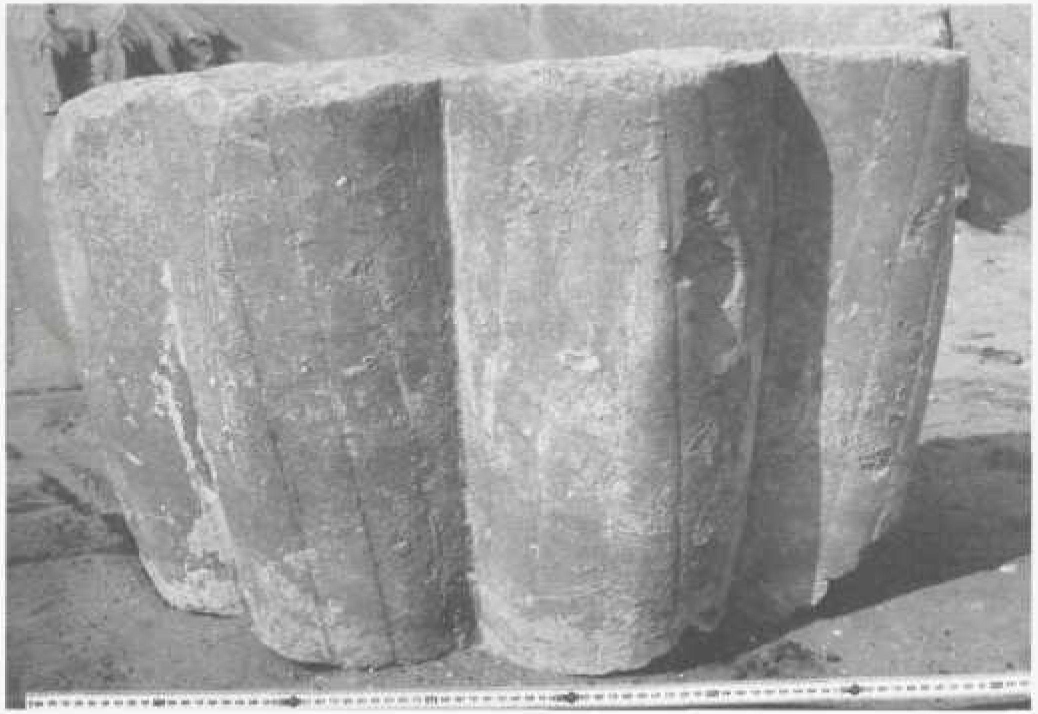
Pl. 138a. Upper end of the capital of a papyrus-bundle column with part of the abacus from the south temple. Photo A.O. (DH 92:130).



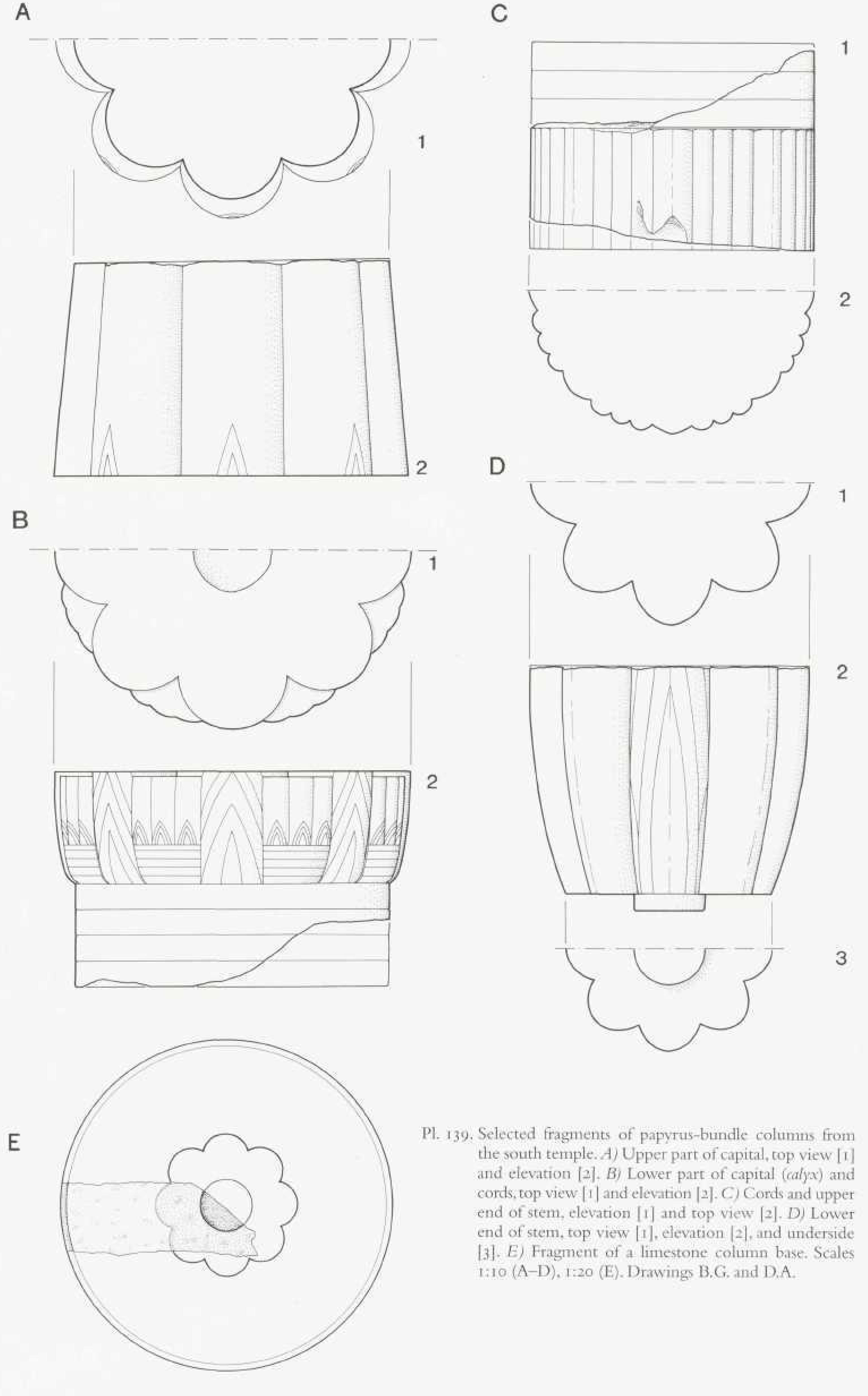
Pl. 138b. Lower half of the capital of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:125).



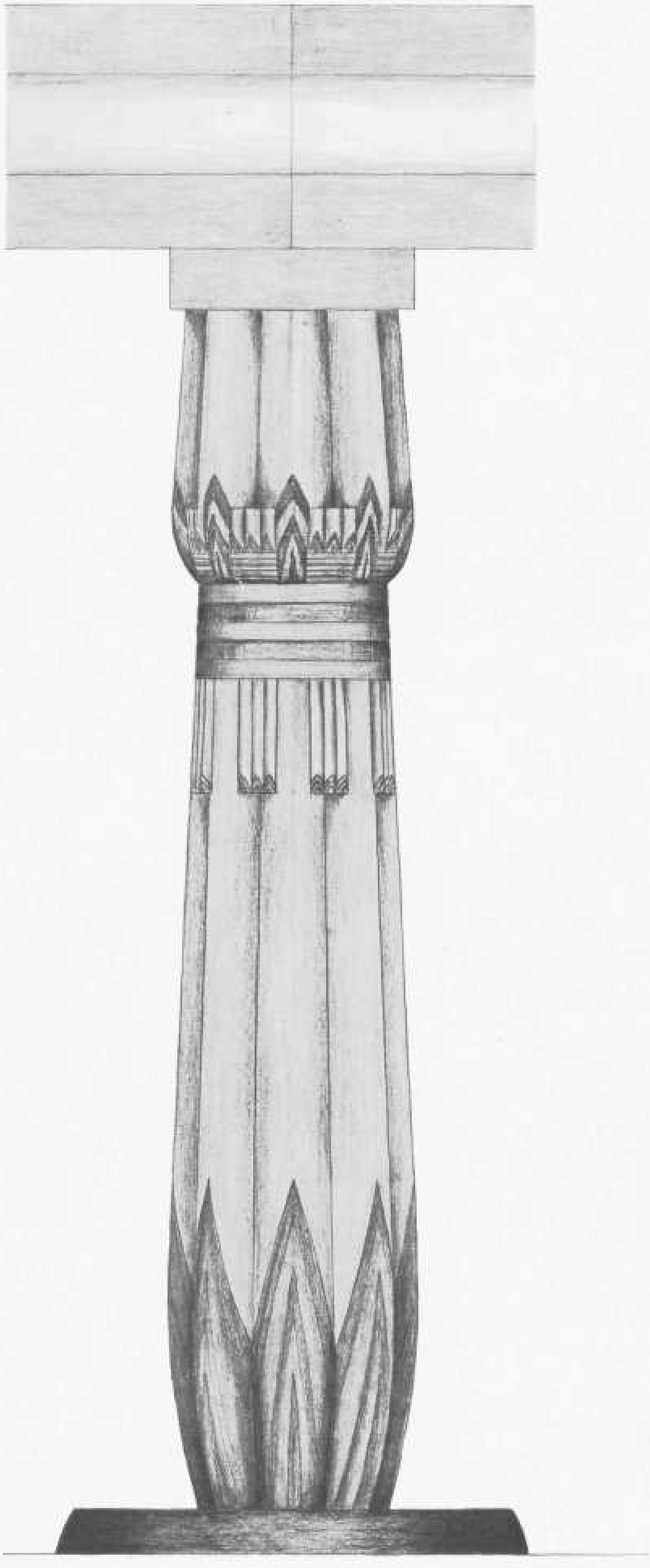
Pl. 138c. Upper end of the capital of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:137).



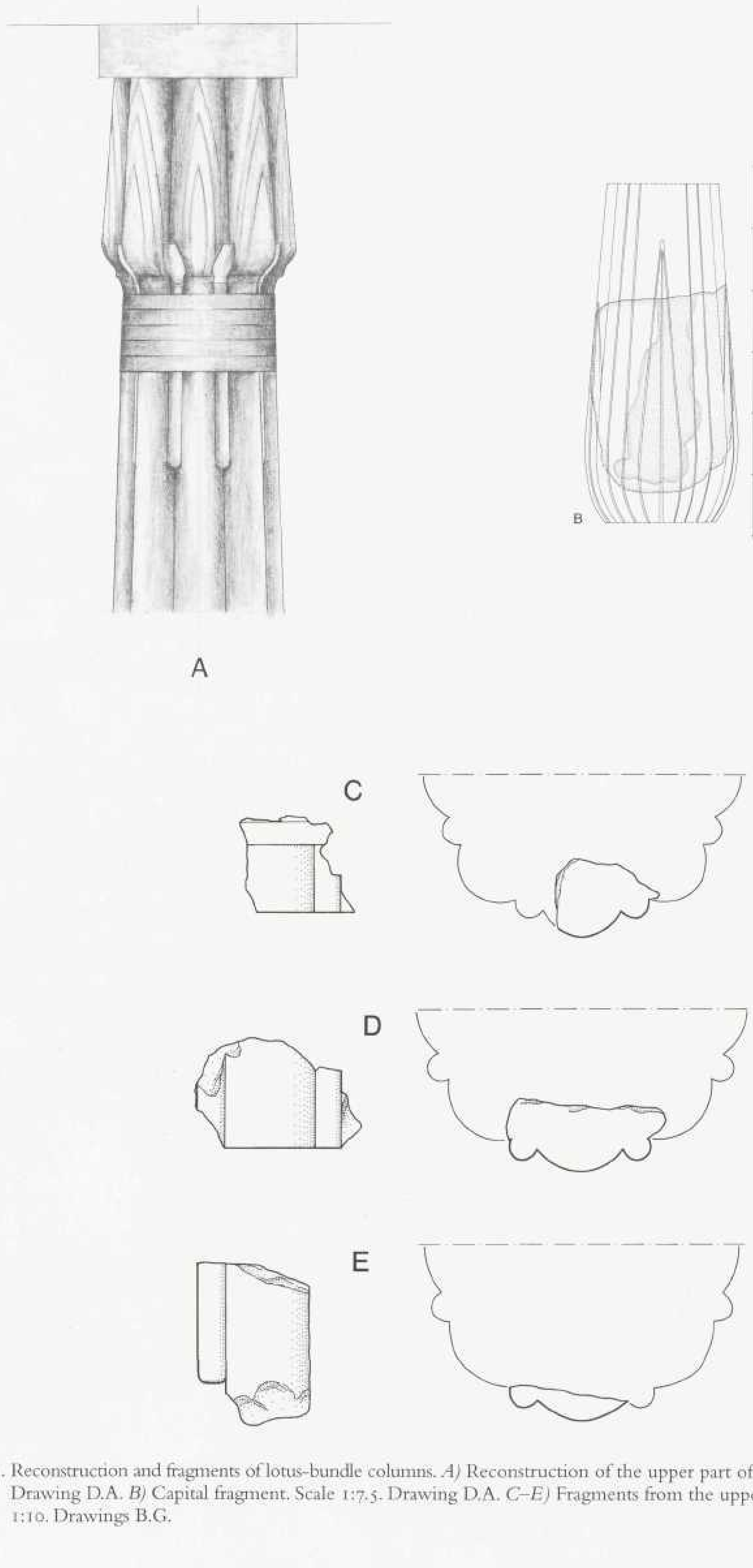
Pl. 138d. Lower end of the shaft of a papyrus-bundle column from the south temple. Photo A.O. (DH 92:138).



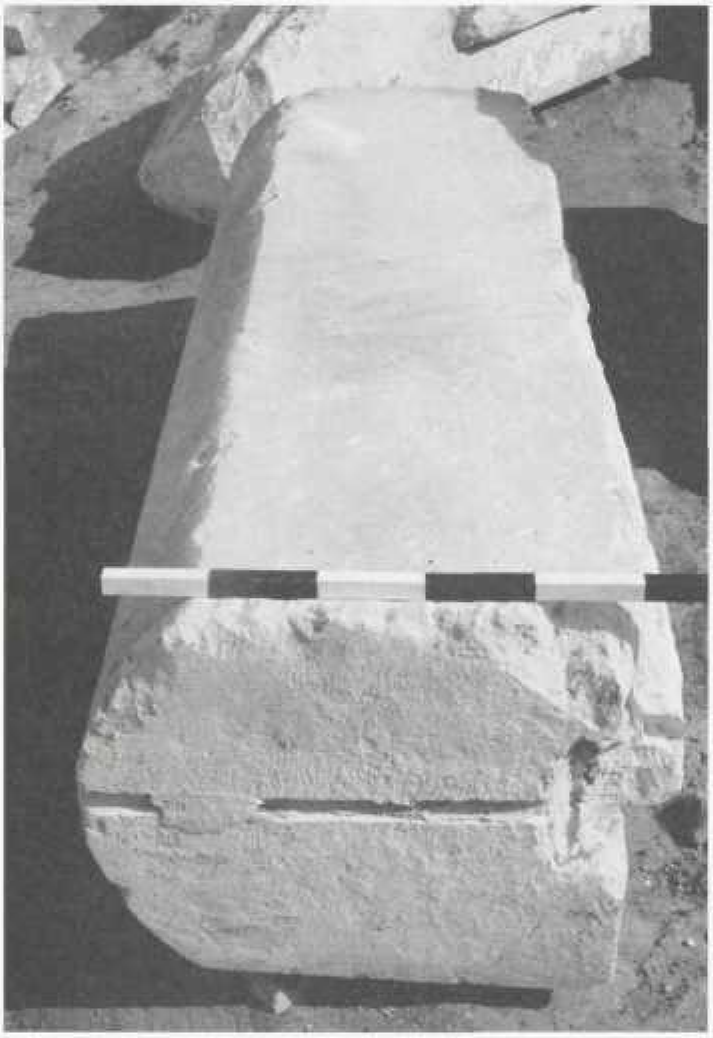
Pl. 139. Selected fragments of papyrus-bundle columns from the south temple. *A)* Upper part of capital, top view [1] and elevation [2]. *B)* Lower part of capital (*calyx*) and cords, top view [1] and elevation [2]. *C)* Cords and upper end of stem, elevation [1] and top view [2]. *D)* Lower end of stem, top view [1], elevation [2], and underside [3]. *E)* Fragment of a limestone column base. Scales 1:10 (A–D), 1:20 (E). Drawings B.G. and D.A.



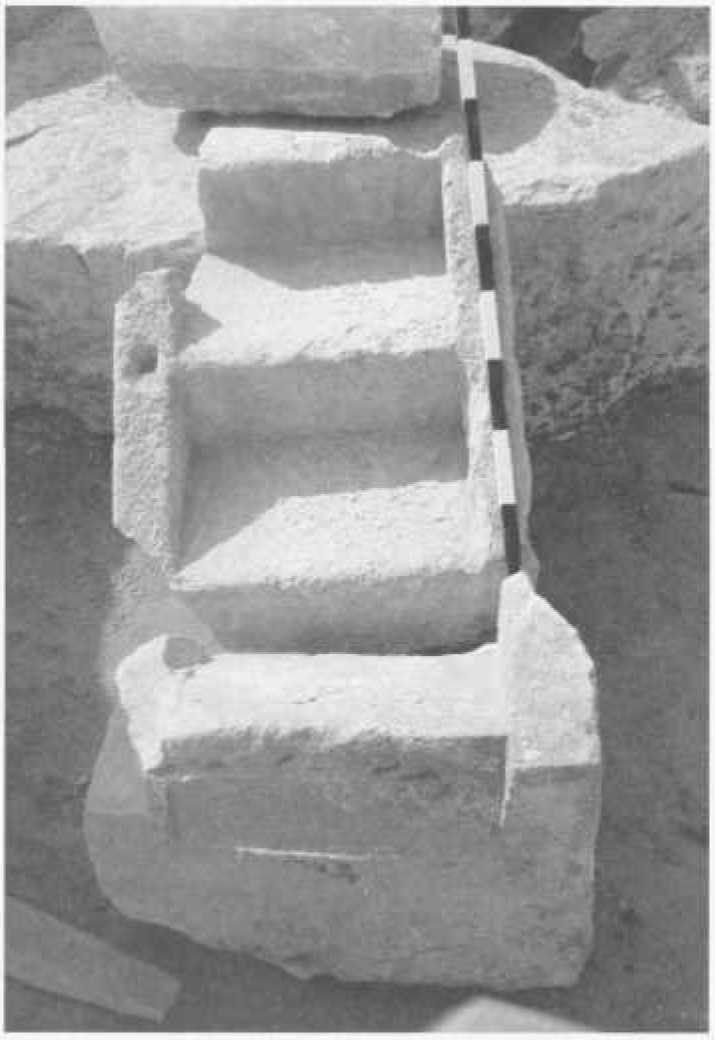
Pl. 140. Reconstruction of a papyrus-bundle column from the south temple. See frontispiece. Height of column including base and abacus 4.20 m. Drawing D.A.



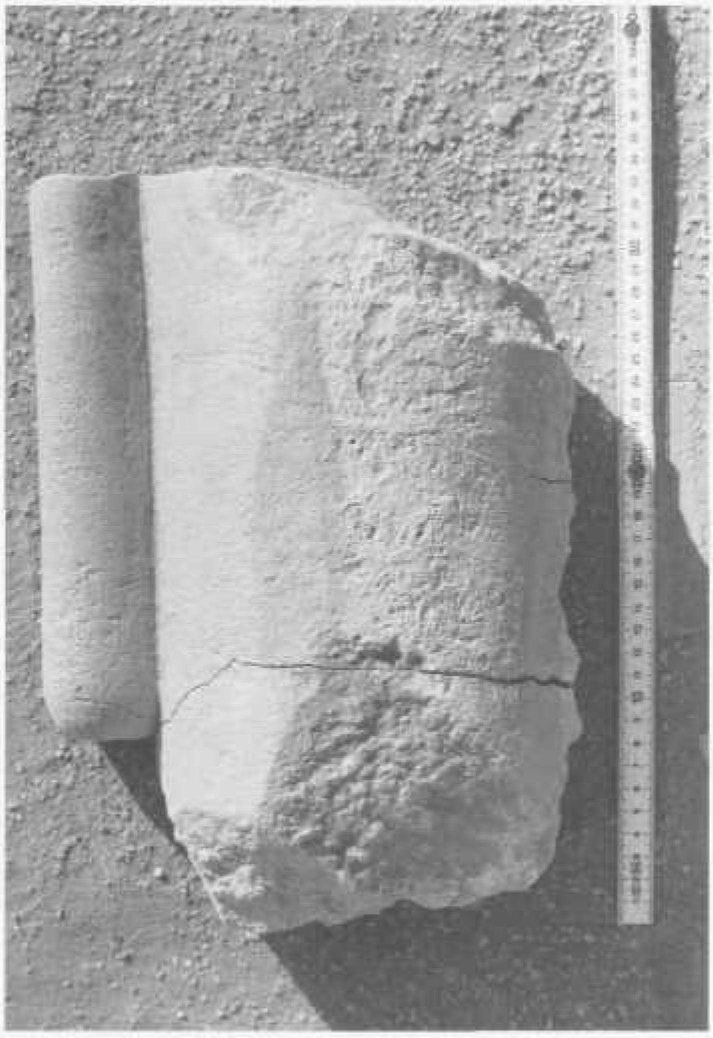
Pl. 141. Reconstruction and fragments of lotus-bundle columns. *A)* Reconstruction of the upper part of a lotus-bundle column. Drawing D.A. *B)* Capital fragment. Scale 1:7.5. Drawing D.A. *C–E)* Fragments from the upper end of the shaft. Scale 1:10. Drawings B.G.



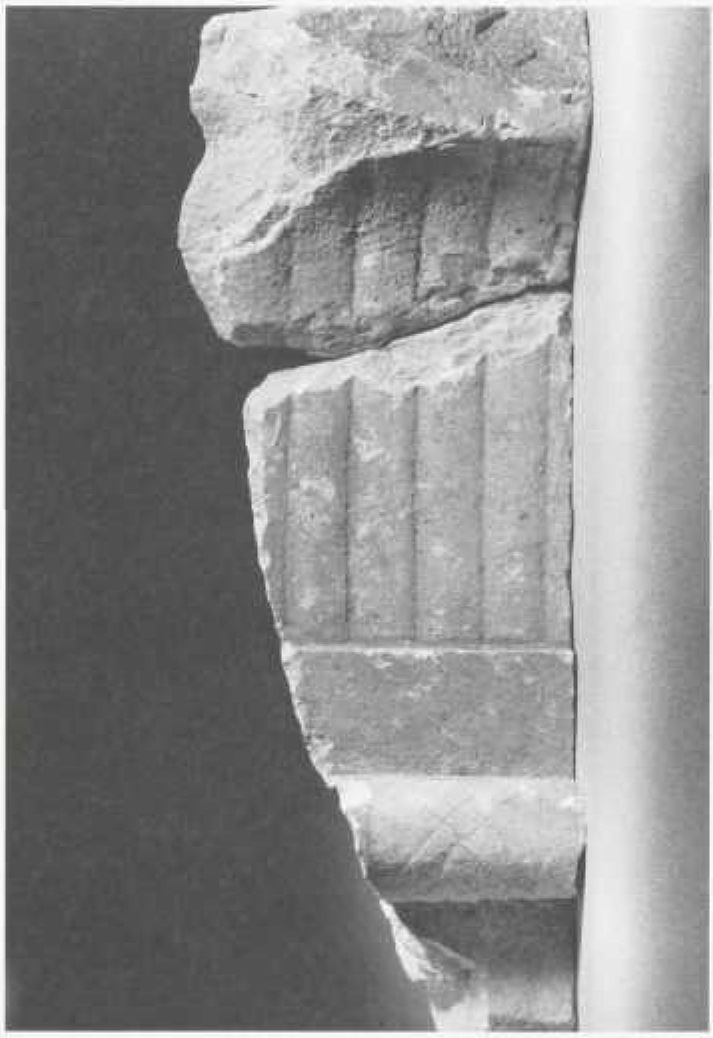
Pl. 142a. Parapet block from the south temple with a vertical channel for plaster. Photo A.O. (DH 92:101).



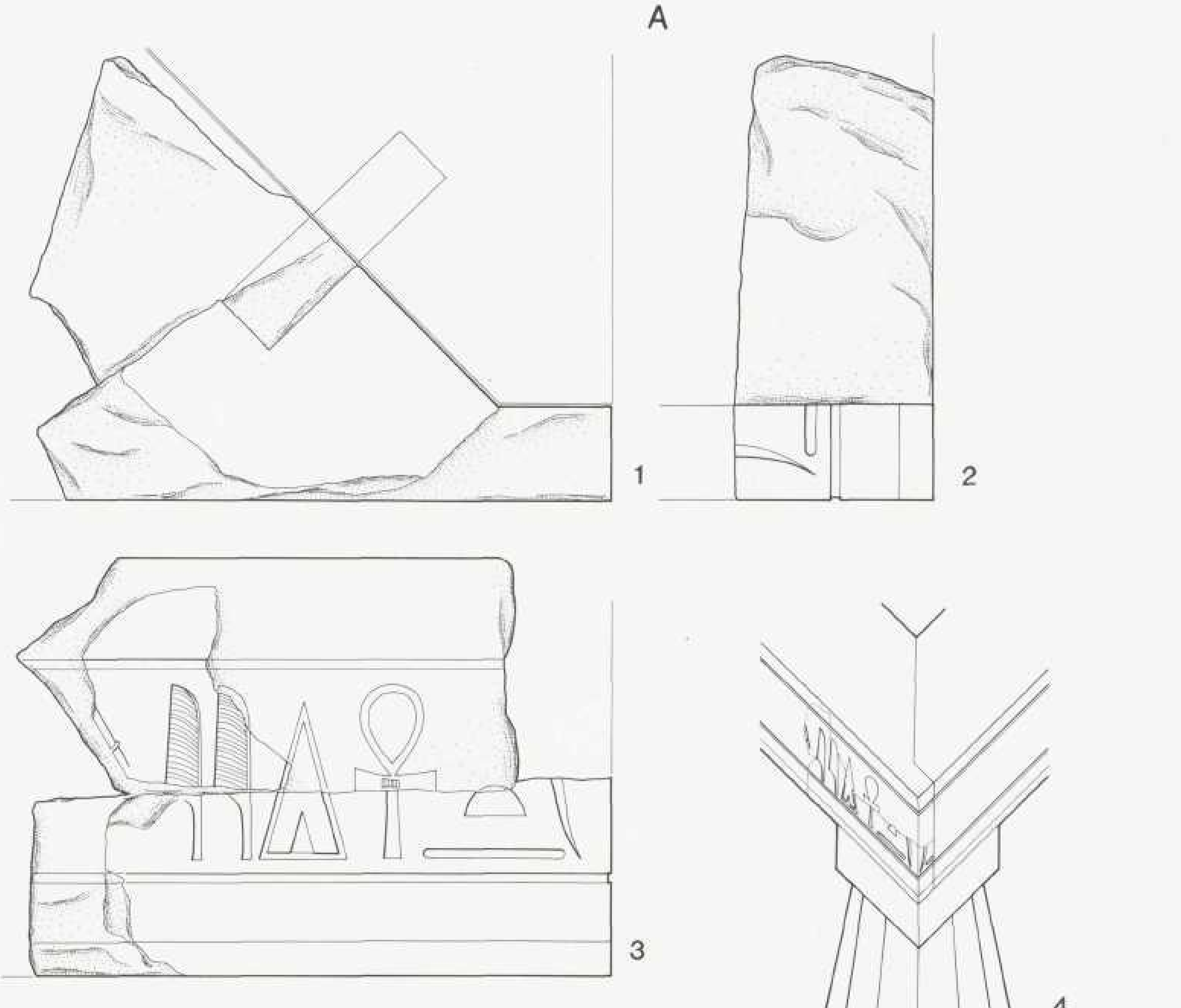
Pl. 142b. Staircase block from the south temple. See pl. 149A. Photo D.A. (DH 92:472).



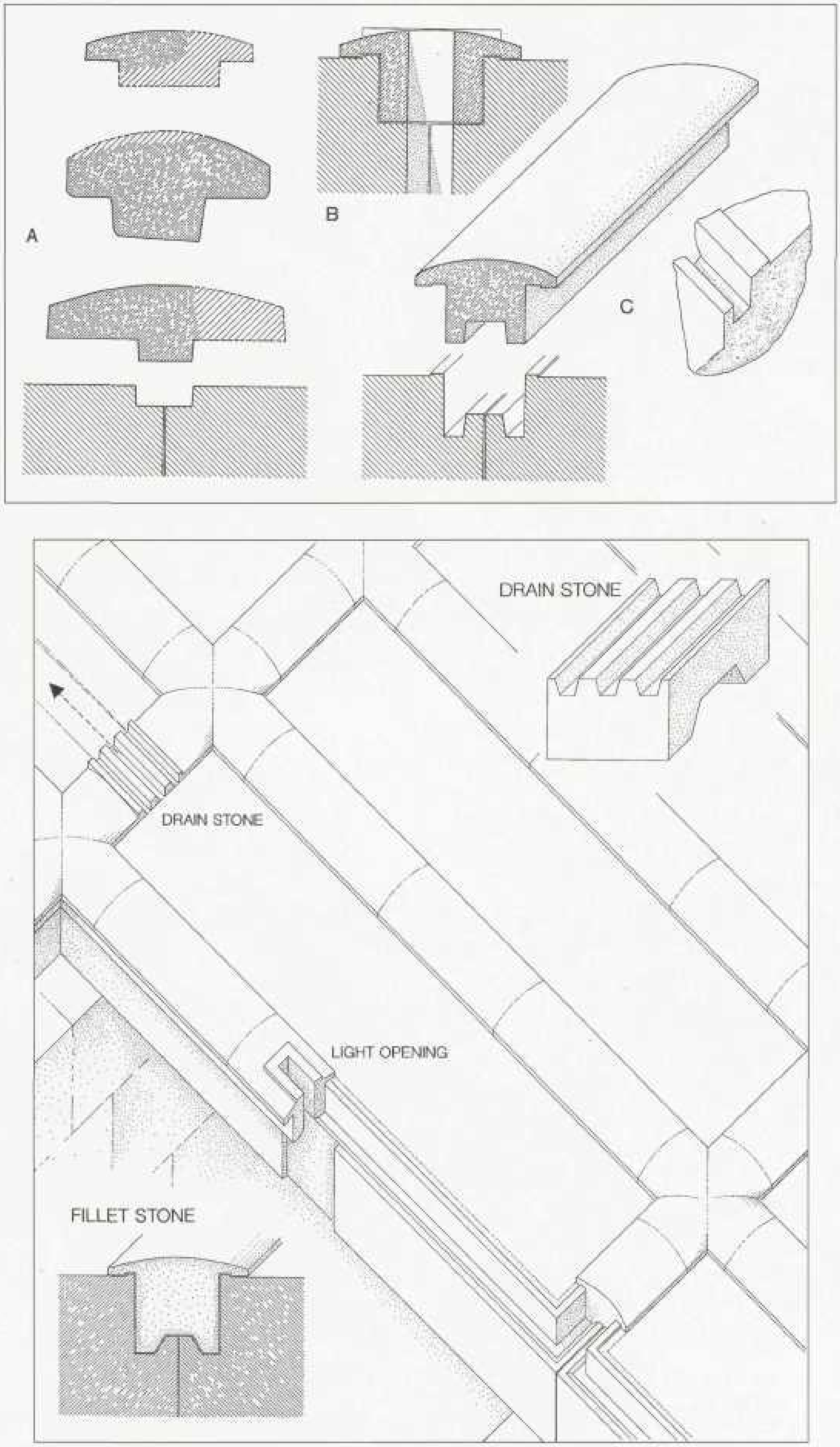
Pl. 142c. Fragment from the shaft of a lotus-bundle column from the south temple. See pl. 141E. Photo A.O. (DH 92:341).



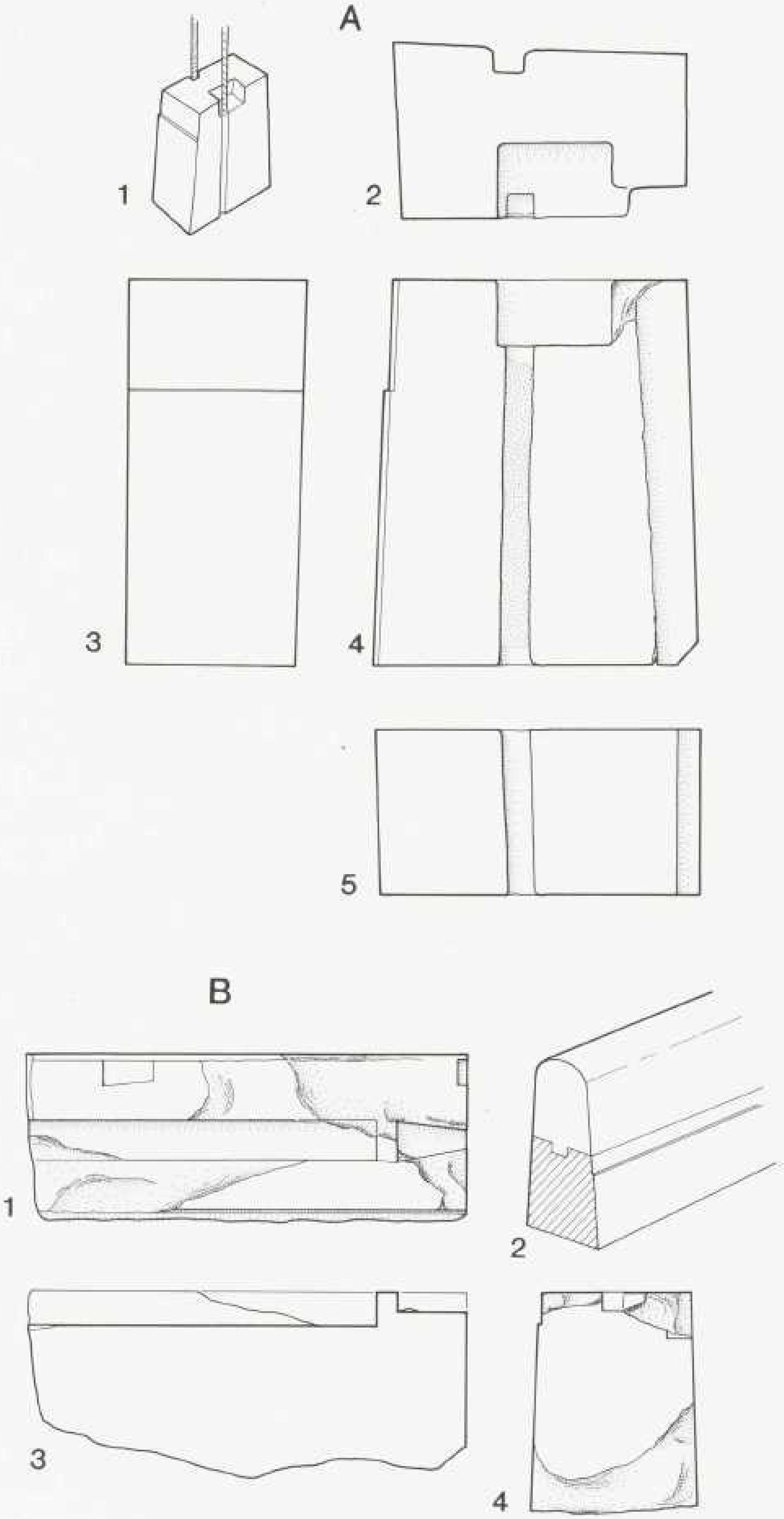
Pl. 142d. Cavetto cornice and torus fragment from the east chapel of pyramid 2 (Nefret-henut). Photo A.K. (DH 97:108/13A).



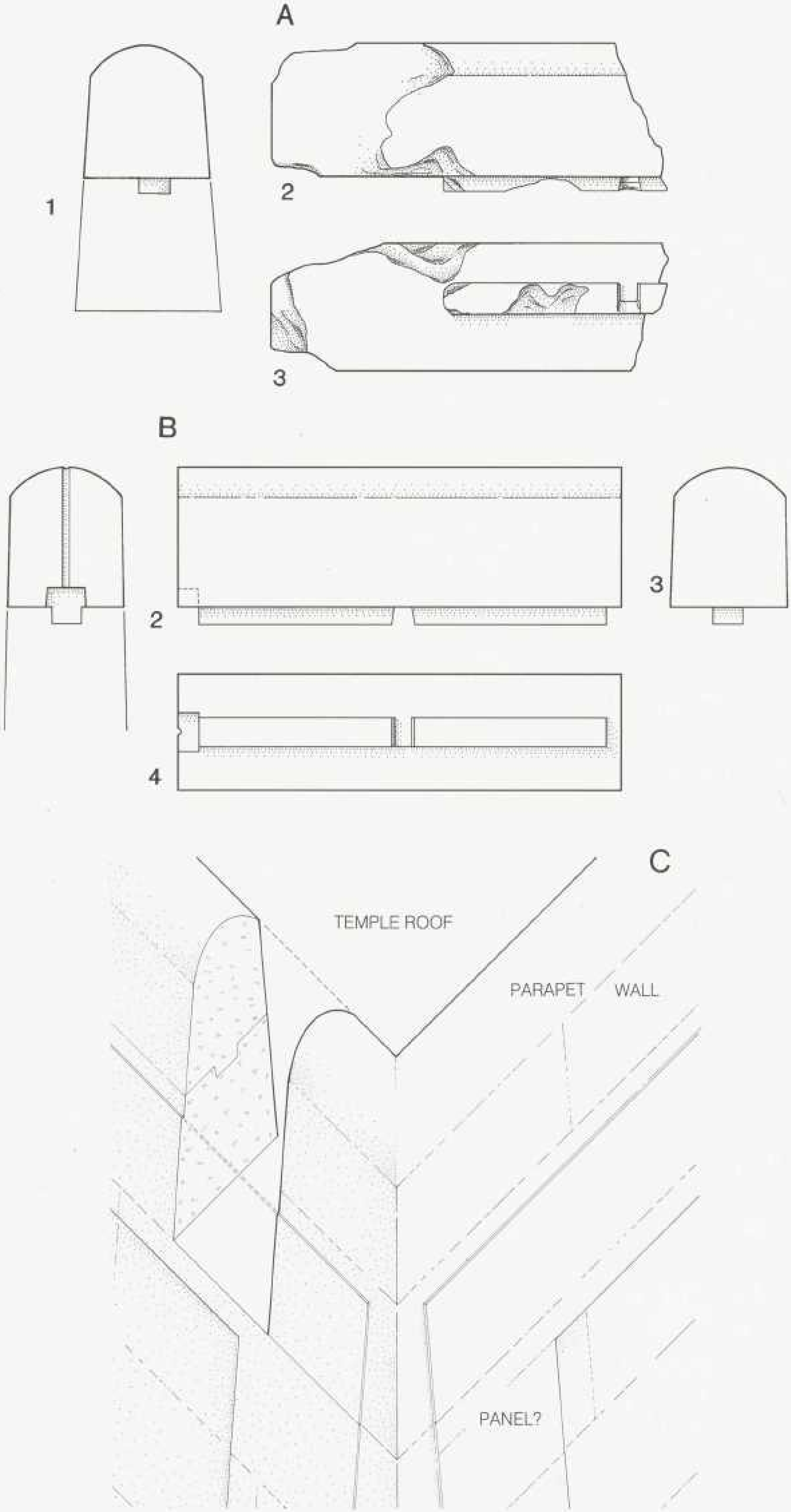
Pl. 143. Architectural fragments from the south temple. *A)* Fragments of an architrave corner, top view [1], front views [2–3], and reconstruction [4]. *B)* Granite block from a shrine, top view with outline of walls [1] and side view [2]. *C)* Granite ceiling block from a shrine, underside [1] and side view [2]. Scales 1:10 (A), 1:20 (B–C). Drawings B.G.



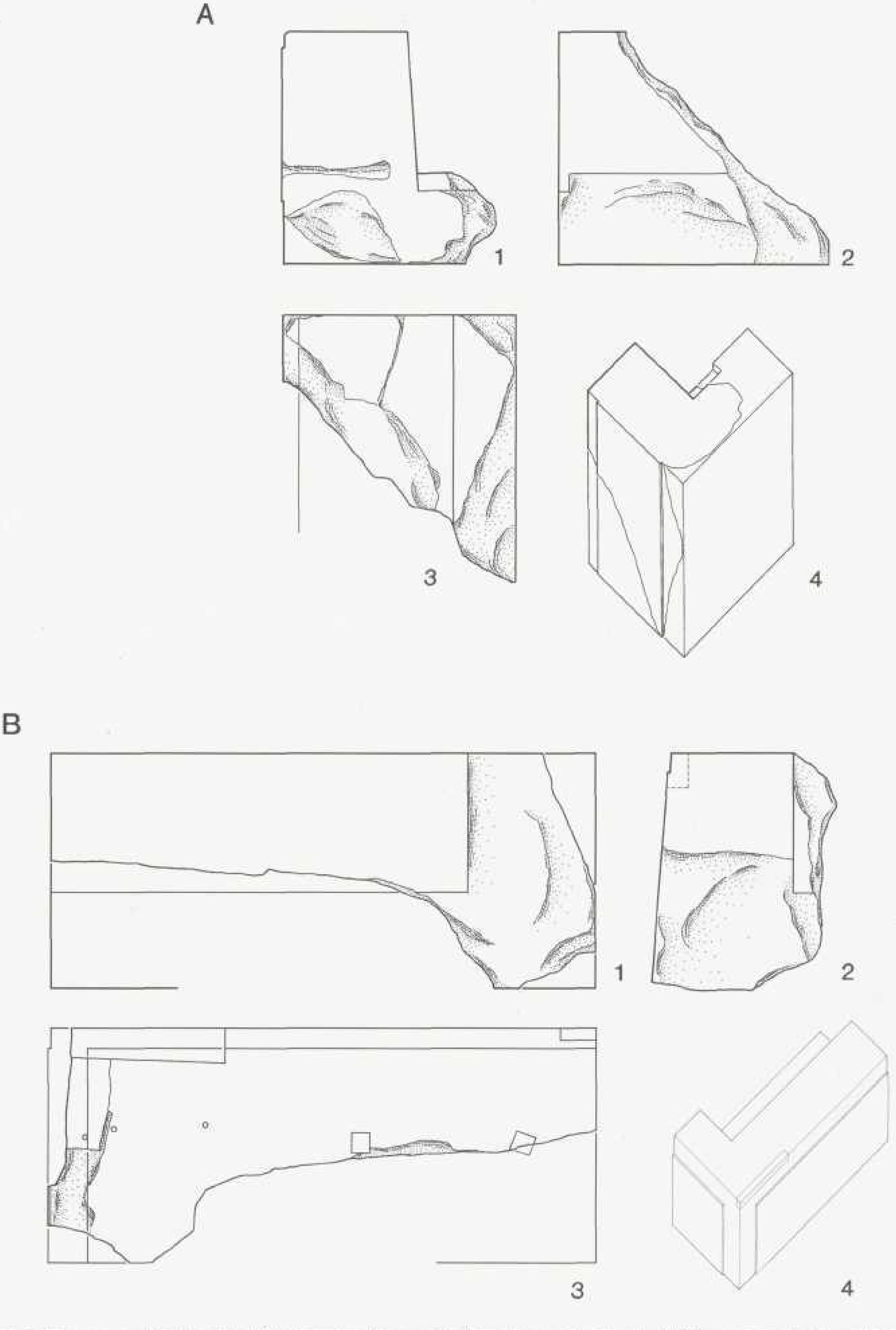
Pl. 144. Upper: Fillet stones from: *A)* the pyramid temple; *B–C)* the south temple. Scales 1:6 (A), 1:10 (B–C). Drawings D.A. Lower: Isometric reconstruction of the roof of the south temple with drain stones and fillet stones. The proportion of the roof slabs has been reduced in relation to the fillet stones. No scale. Drawing D.A.



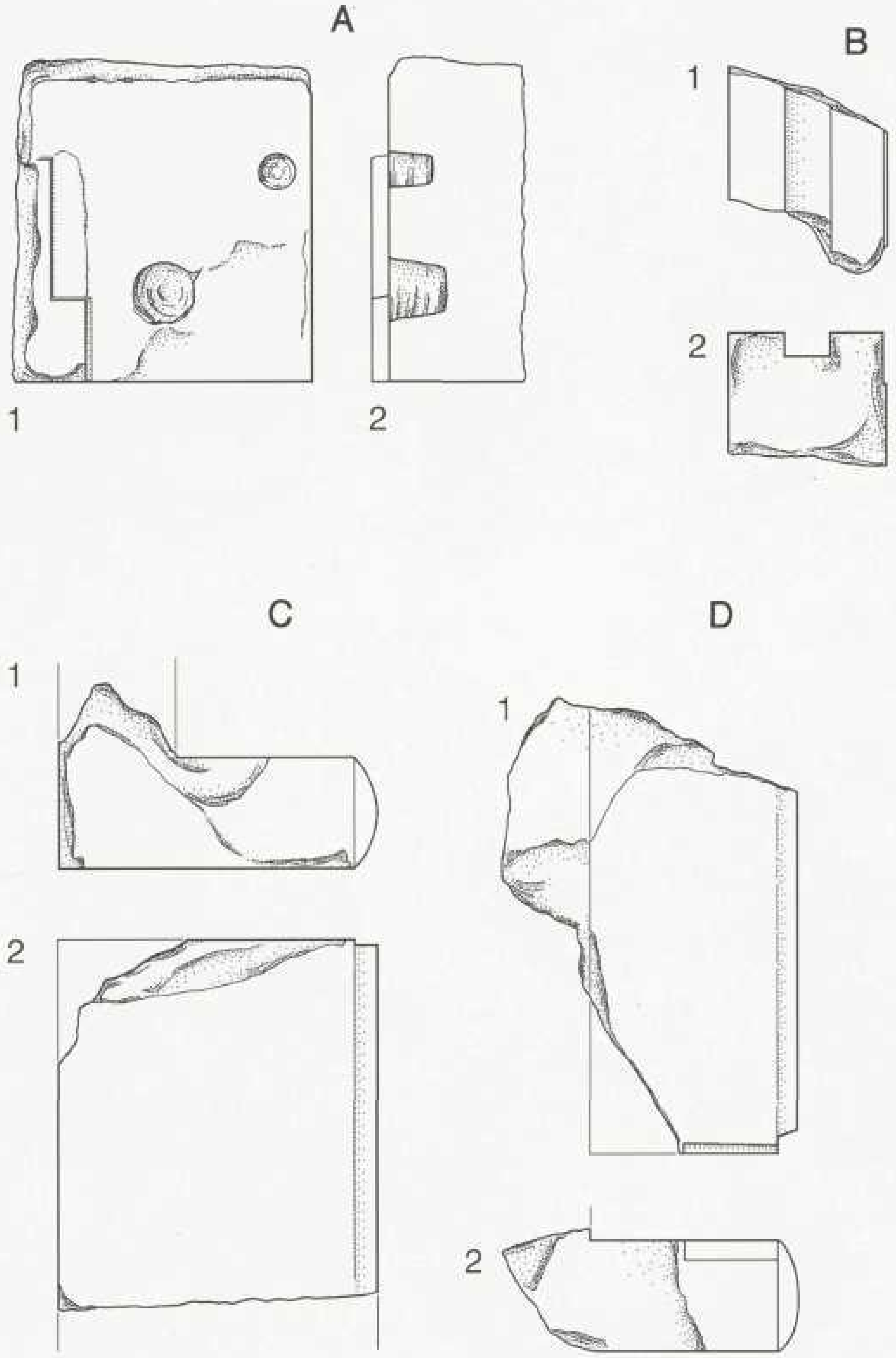
Pl. 145. Two parapet blocks from the south temple. *A)* Keystone with rope grooves for positioning, reconstruction [1], top view [2], front view [3], side view [4], and underside [5]. *B)* Top view with groove to bond with upper block [1], reconstruction [2], longitudinal section [3], and side view [4]. Scales 1:10 (A), 1:20 (B). Drawings B.G. from drawings by D.A.



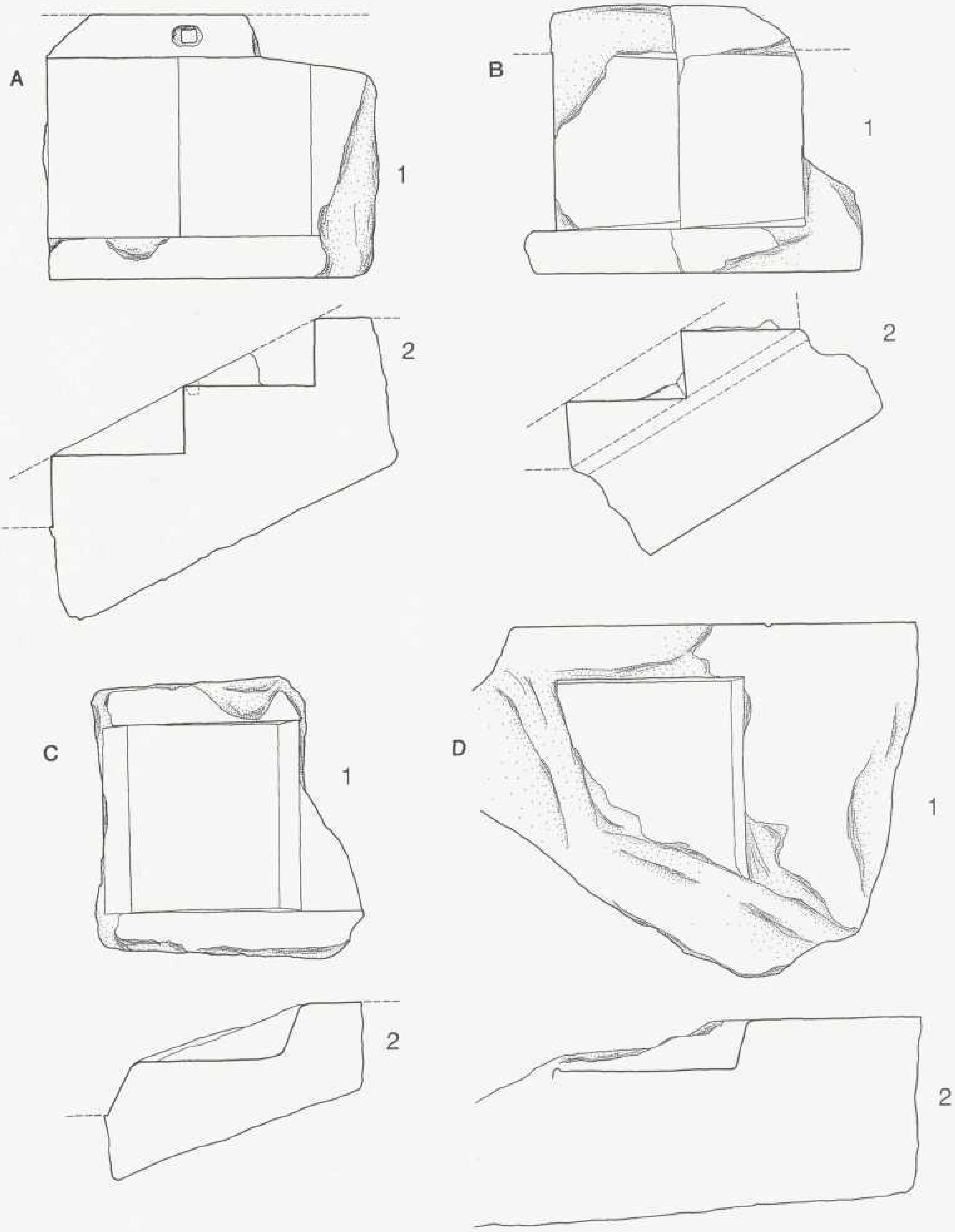
Pl. 146. Parapet blocks from the south temple. *A)* Side view [1], front view [2], and underside [3]. *B)* Side views [1, 3], front view [2], and underside [4]. *C)* Reconstruction of the temple corner with parapet blocks. Scale 1:20. Drawings B.G. from drawings by D.A.



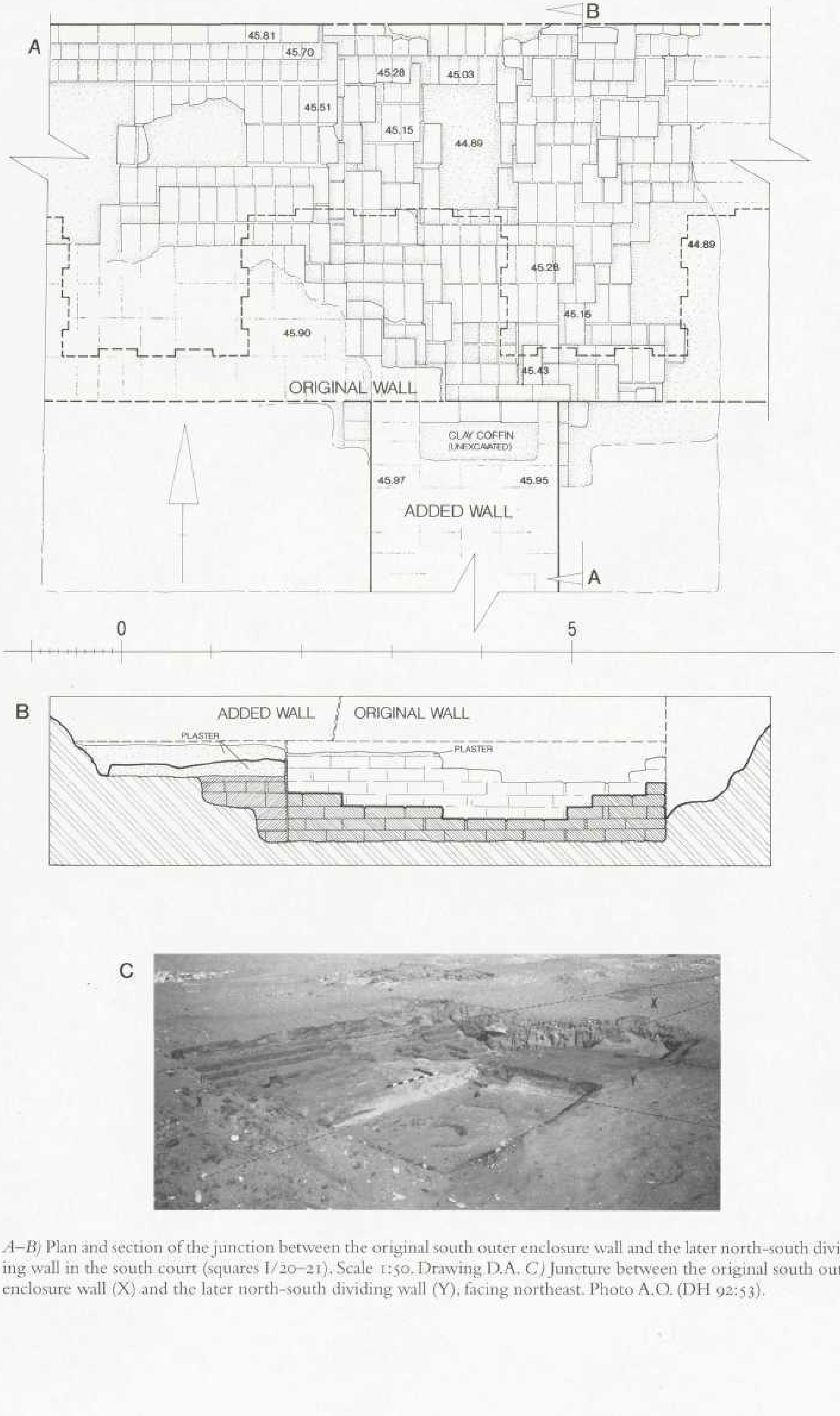
Pl. 147. Two corner blocks with slightly protruding panels from the south temple. *A)* Three views [1–3] and isometric reconstruction [4]. *B)* Three views [1–3] and isometric reconstruction [4]. Scale 1:20. Drawings B.G. from drawings by D.A.



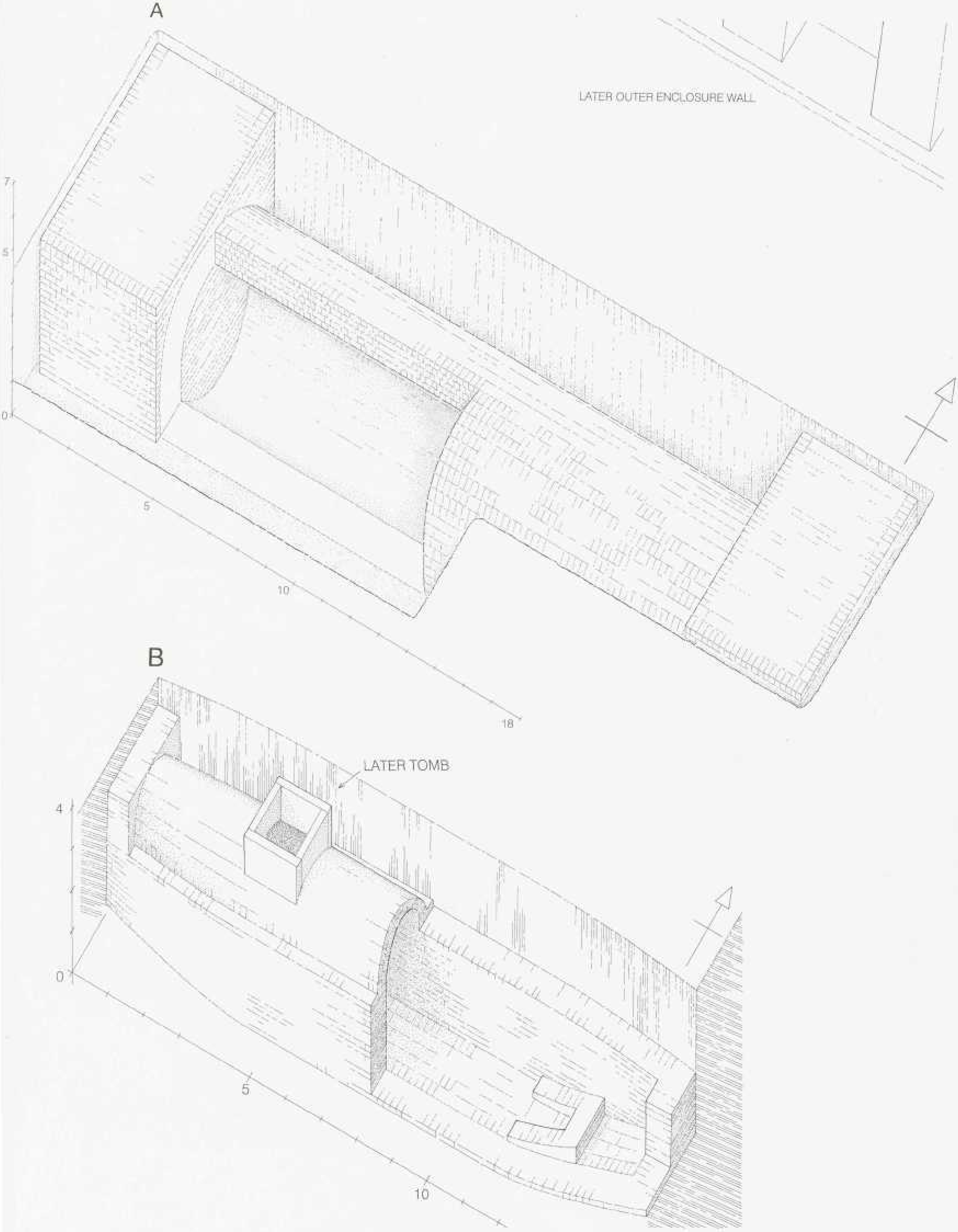
Pl. 148. Four blocks from the south temple. *A)* Part of a threshold, top view [1] and section [2]. *B)* Parapet block, top view [1] and side view [2]. *C)* Doorframe, top view [1] and front view [2]. *D)* Doorframe, inside view [1] and top view [2]. Scale 1:20. Drawings B.G. from drawings by D.A.



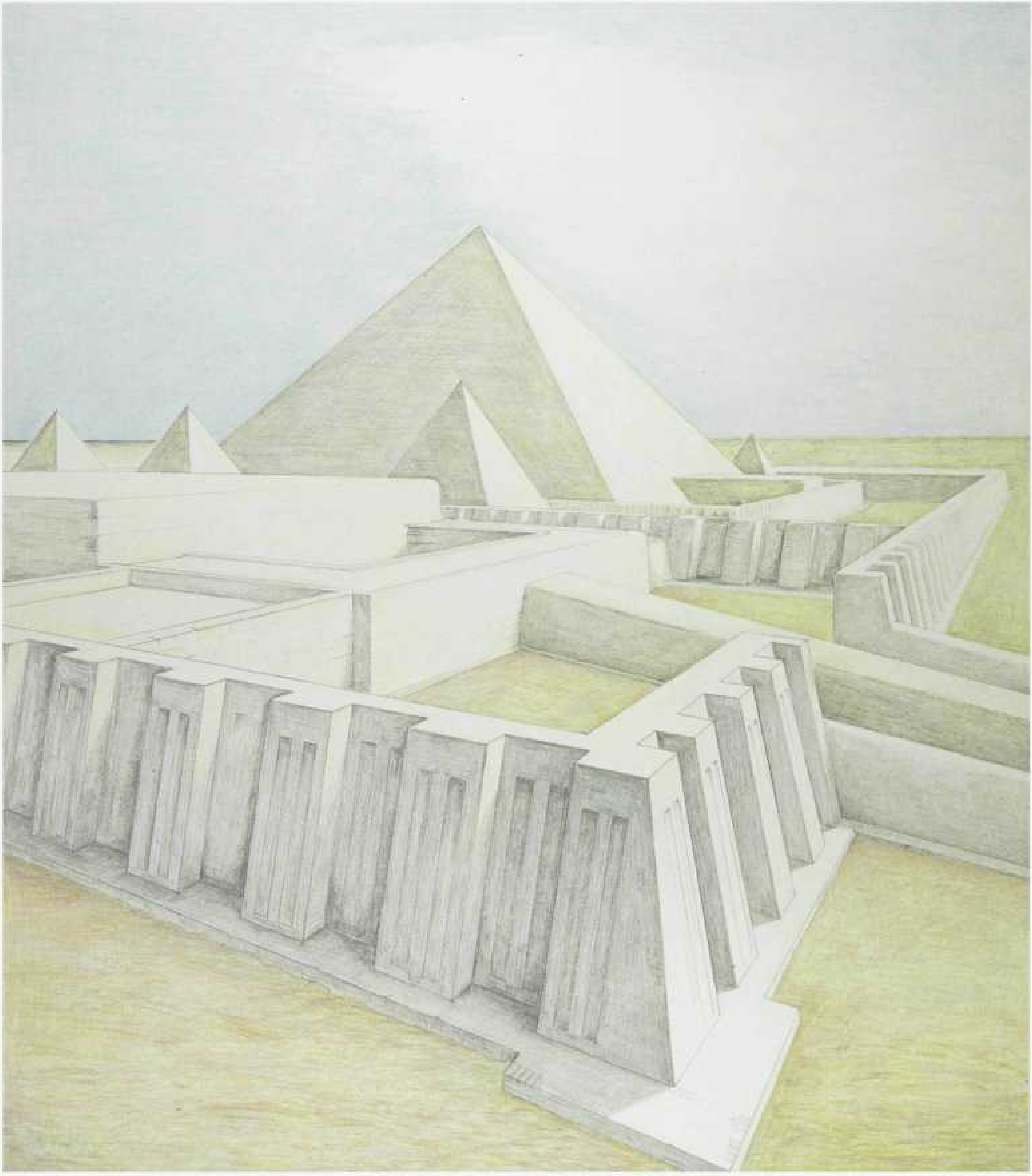
Pl. 149. Four staircase blocks from the south temple, top views [1] and sections [2]. See pl. 142b. Scale 1:10. Drawings B.G. from drawings by D.A.



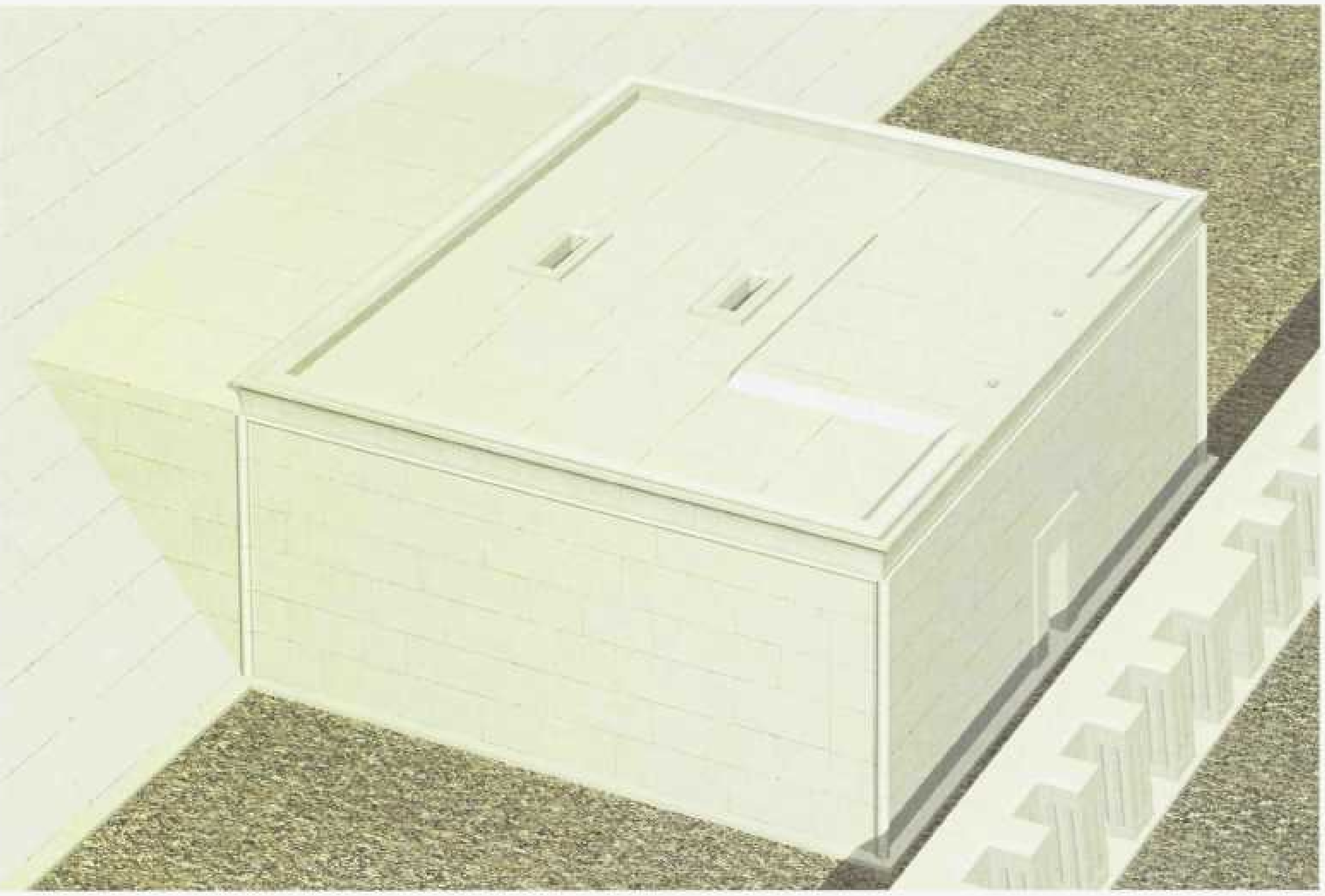
Pl. 150. *A–B)* Plan and section of the junction between the original south outer enclosure wall and the later north-south dividing wall in the south court (squares I/20–21). Scale 1:50. Drawing D.A. *C)* Juncture between the original south outer enclosure wall (X) and the later north-south dividing wall (Y), facing northeast. Photo A.O. (DH 92:53).



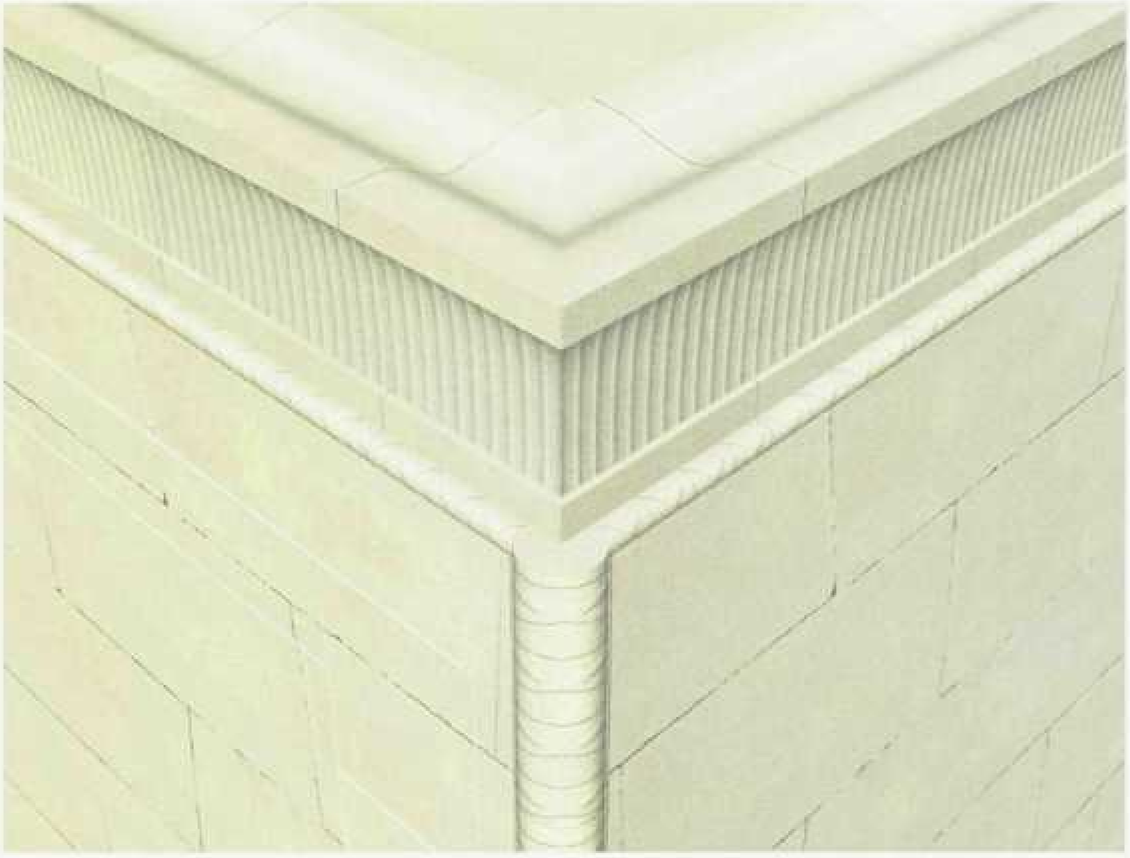
Pl. 151. *A)* Axonometric reconstruction of the boat pit outside the southwest corner of the pyramid complex of Senwosret III at Dahshur. *B)* Axonometric reconstruction of the boat pit south of queen's pyramid 5 in the pyramid complex of Senwosret I at Lisht. Drawings D.A.



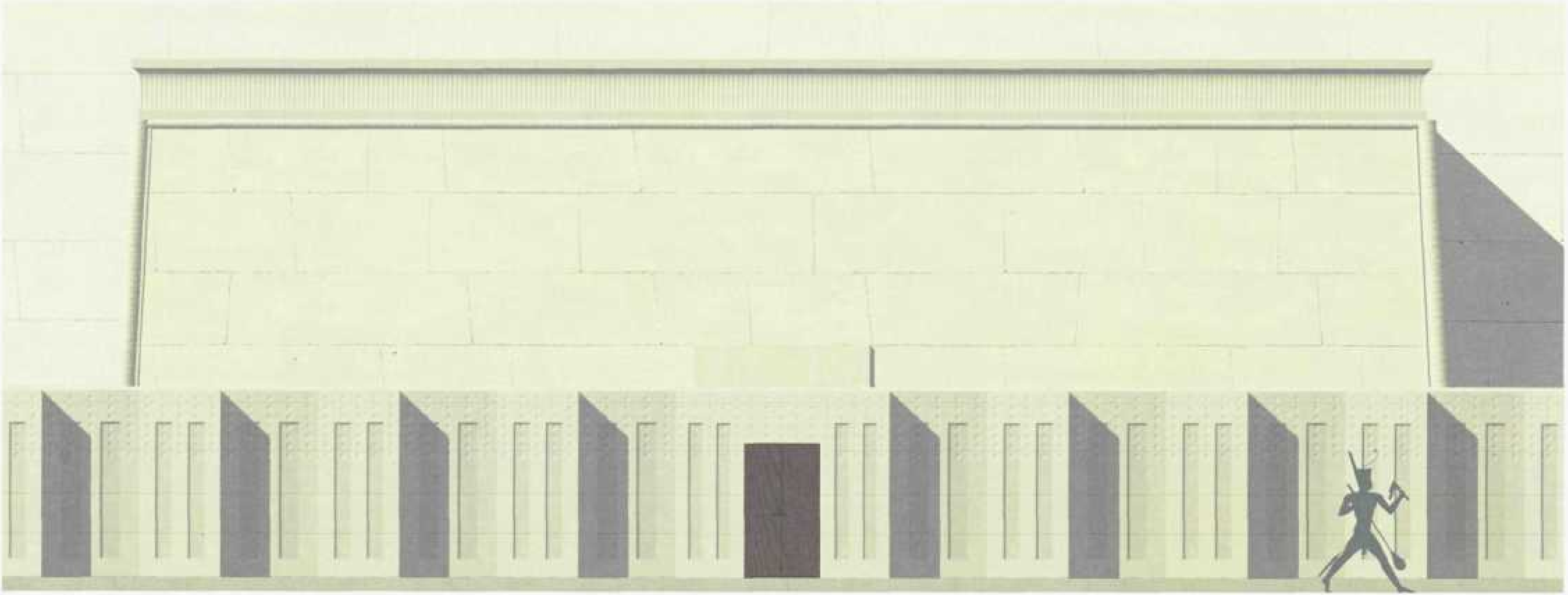
Pl. 152. Reconstruction of the pyramid complex of Senwosret III at Dahshur, facing northwest. Drawing D.A.



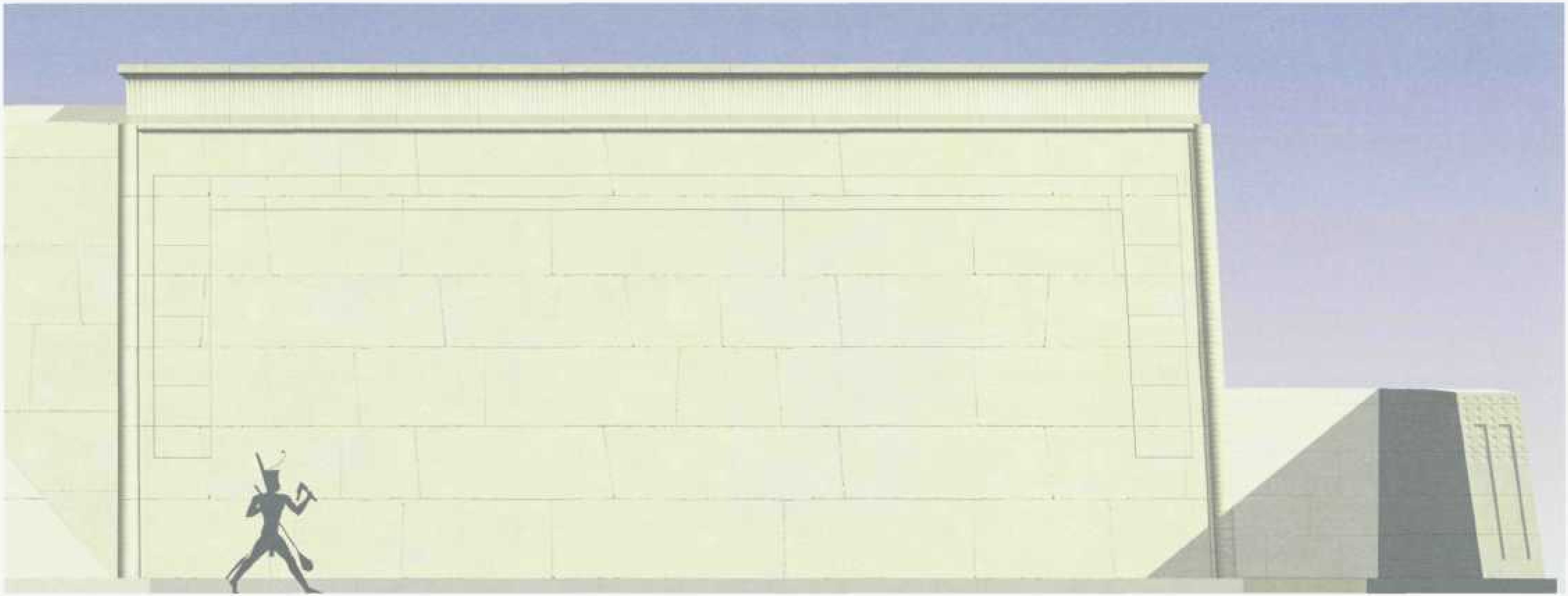
Pl. 153a. The pyramid temple and stone inner enclosure wall, facing northwest. Computer modeling by David Johnson, The Museum of Reconstructions.



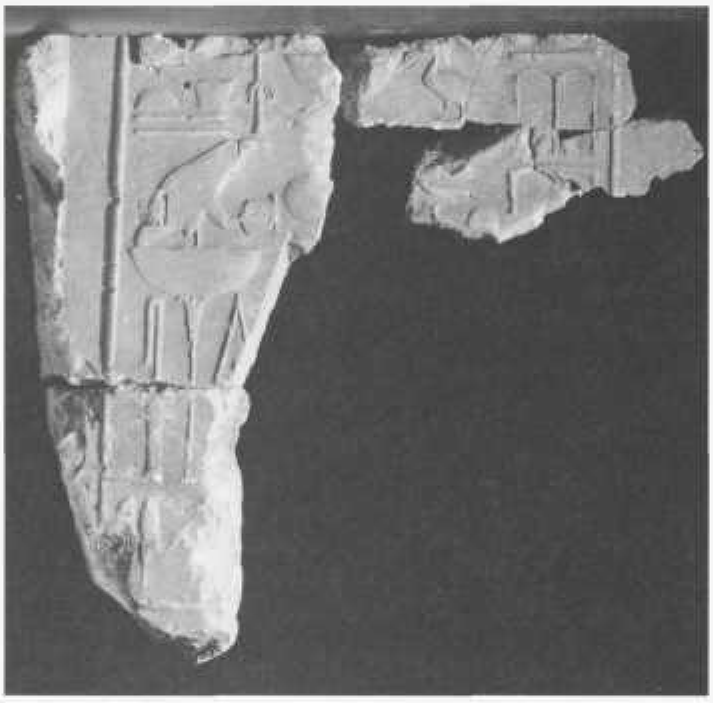
Pl. 153b. Detail of the pyramid temple southeast corner. The exterior inscription has been omitted from the east side. Computer modeling by David Johnson, The Museum of Reconstructions.



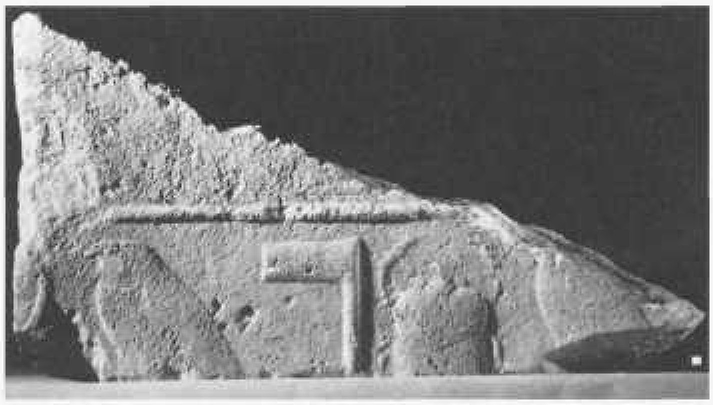
Pl. 154. Elevation of the east side of the pyramid temple and the stone inner enclosure wall. The exterior inscription has been omitted. Computer modeling by David Johnson, The Museum of Reconstructions.



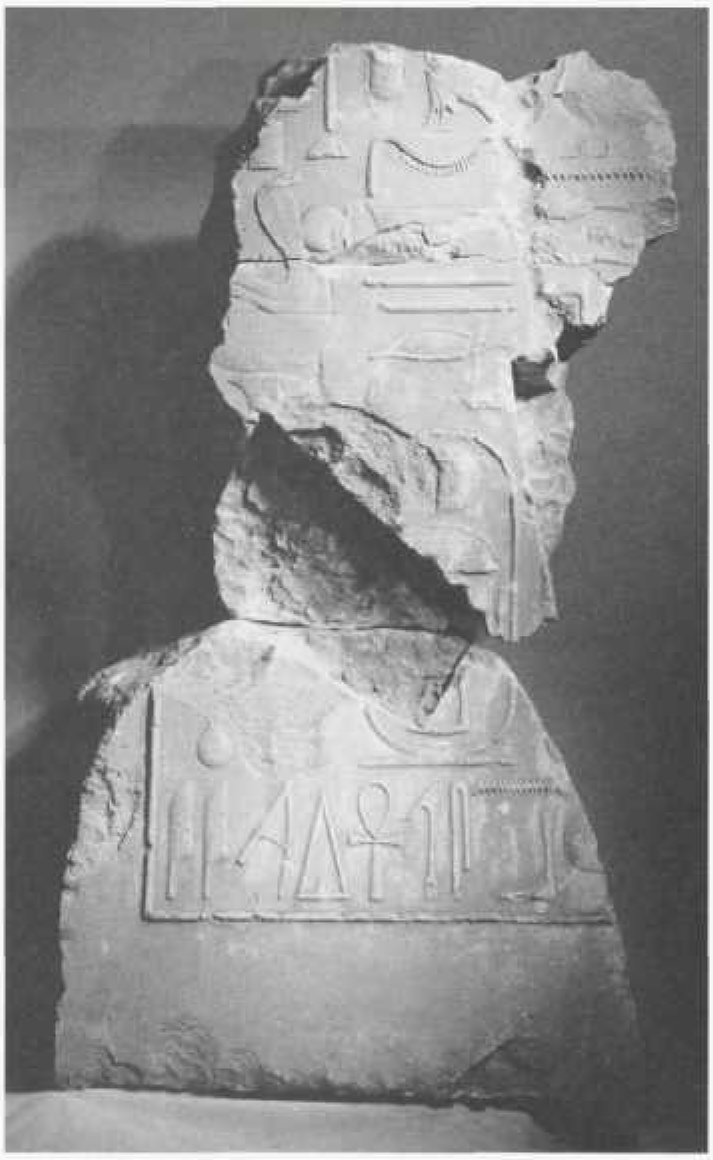
Pl. 155. Elevation of the south side of the pyramid temple. Computer modeling by David Johnson, The Museum of Reconstructions.



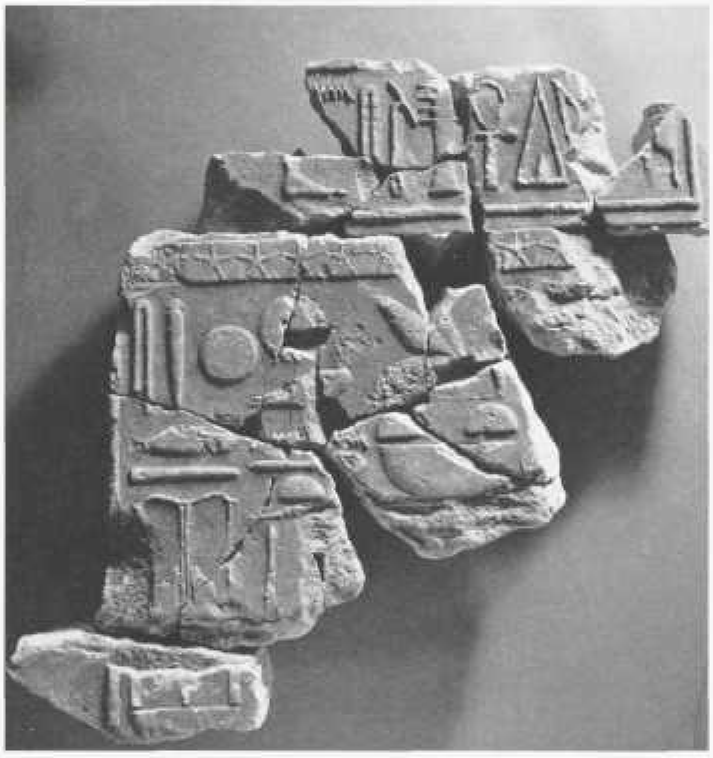
Pl. 156a. Exterior royal-name panel from the pyramid temple with remains of a corner torus to the left. Within the panel, Nekhbet is on the left and part of a *sed*-festival inscription is on the right. Dimensions: 84.4 x 75 cm. Photo B.S. (from color transparency).



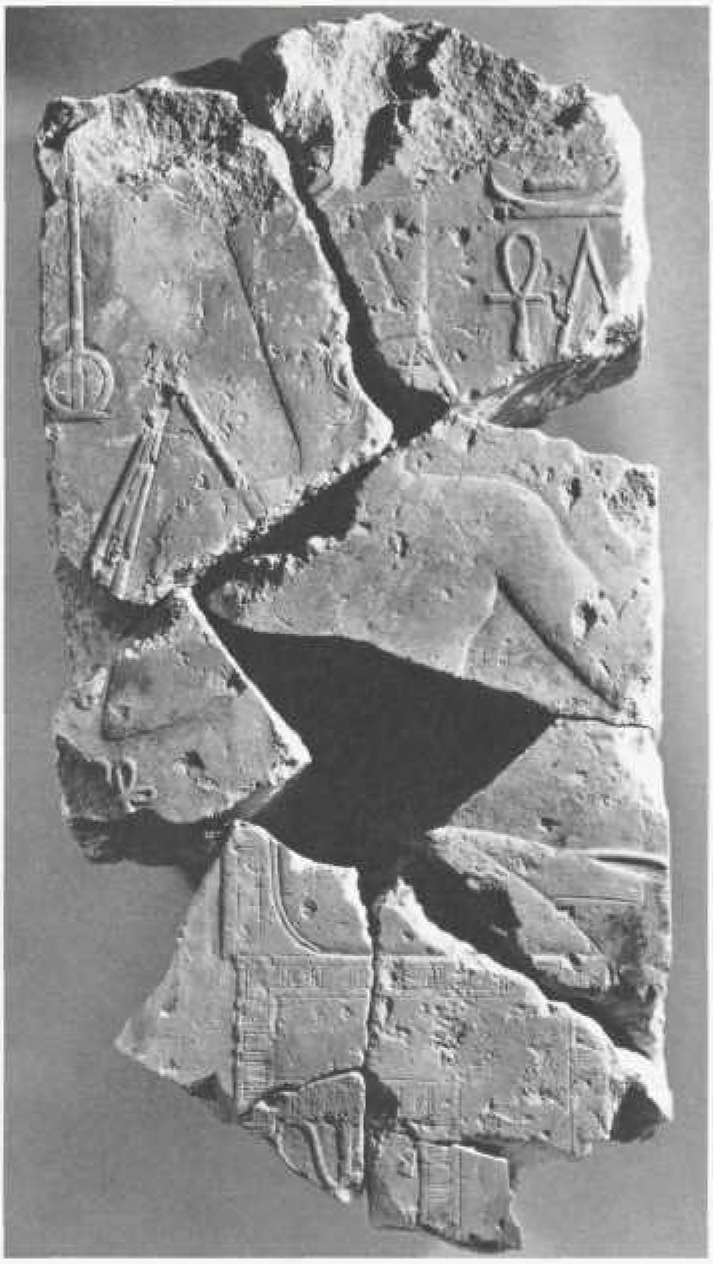
Pl. 156b. Exterior horizontal inscription with the Horus name of Senwosret III. It probably originates from the center of one of the walls of the pyramid temple. Dimensions: 78.5 x 45 cm. Photo A.K. (DH 99:R106).



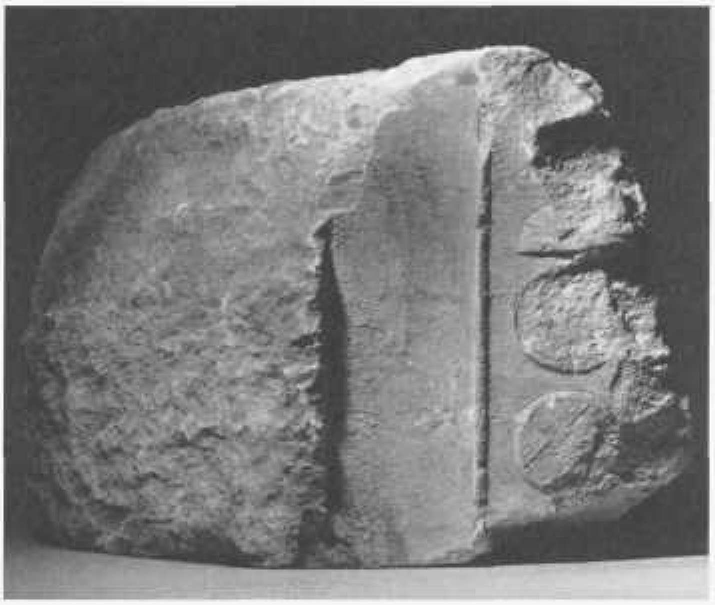
Pl. 156c. Exterior royal-name panel from the pyramid temple. The block originates from the bottom of a vertical column of text. Dimensions: 100.5 x 58.5 cm. Photo K.M. (DH 95:568).



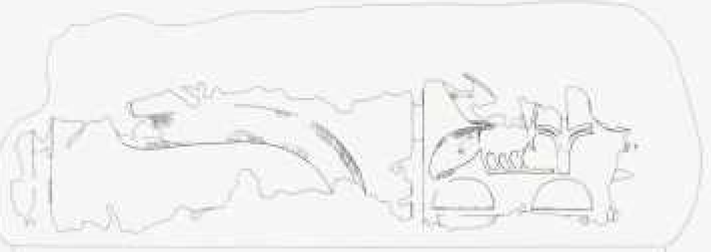
Pl. 156d. Parts of two exterior royal-name panels from the pyramid temple. The lower one includes a reference to the "first *sed*-festival." Dimensions: 84.3 x 72.5 cm. Photo B.S. (DH 00:R70).



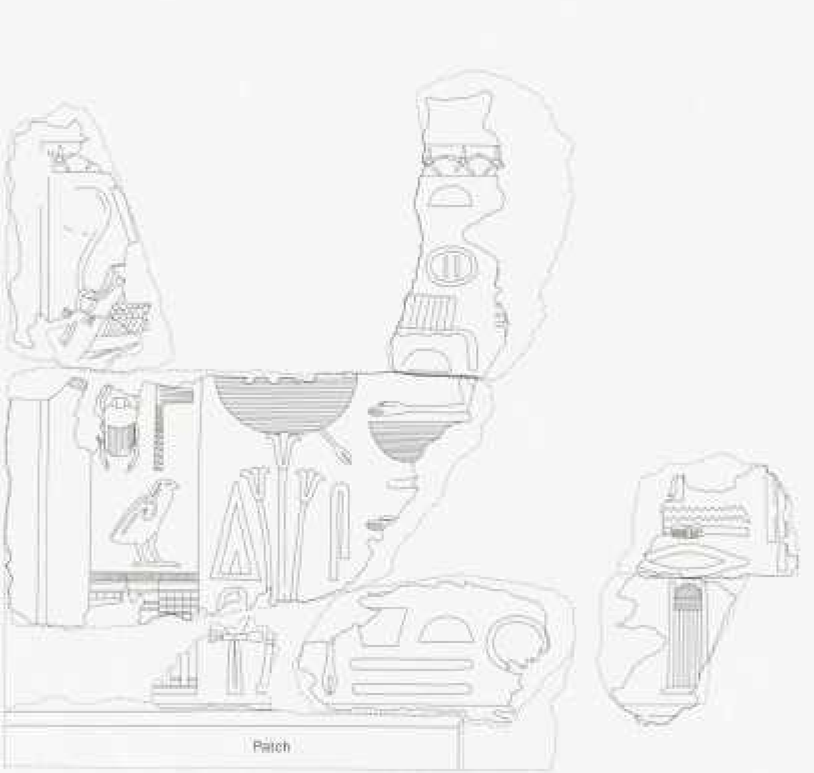
Pl. 157a. An enthroned Senwosret III wearing the red crown and carrying a flail from the pyramid temple. Dimensions: 43.1 x 85.8 cm. Photo B.S. (DH 00:R64).



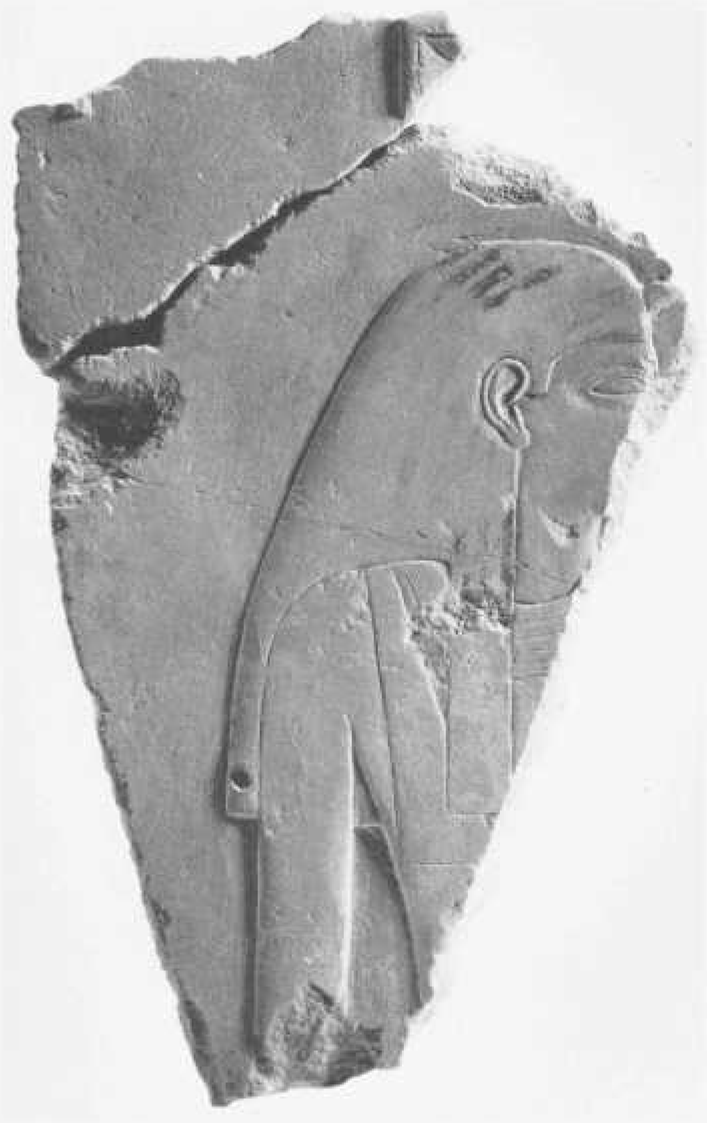
Pl. 157b. Left side of royal-name panel from the exterior of the pyramid temple with part of the designation for the cities of Dep and Pe. To the left is part of a corner torus. See also pl. 34A. Dimensions: 42 x 32.1 cm. Photo A.K. (DH 98:R73).



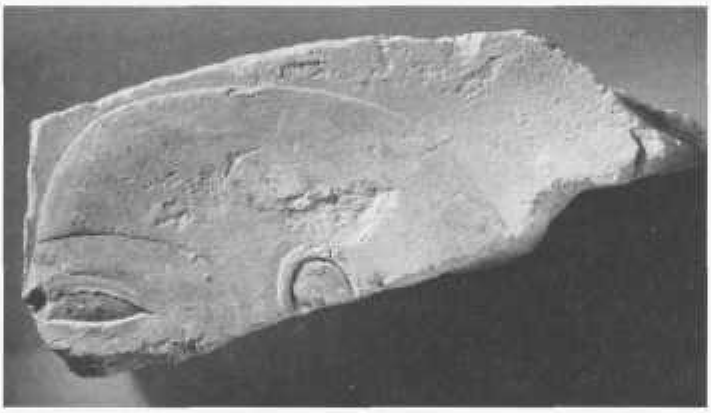
Pl. 157c. Juncture of a horizontal inscription (left) and a royal-name panel (right) from the exterior of the pyramid temple. Dimensions: 58.4 x 15.5 cm. Drawing T.S.



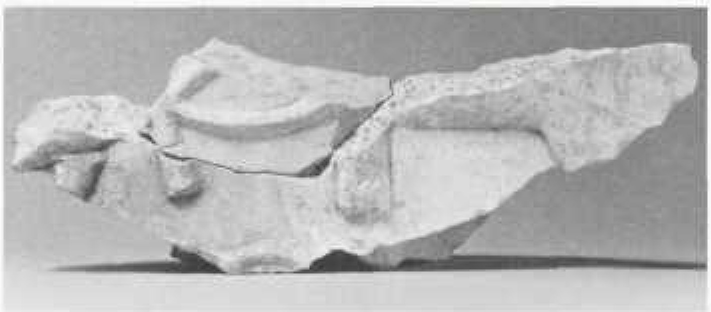
Pl. 157d. Computer reconstruction of the lintel over the entrance to the pyramid temple. See also pl. 35A. Computer illustration by Peter der Manuelian.



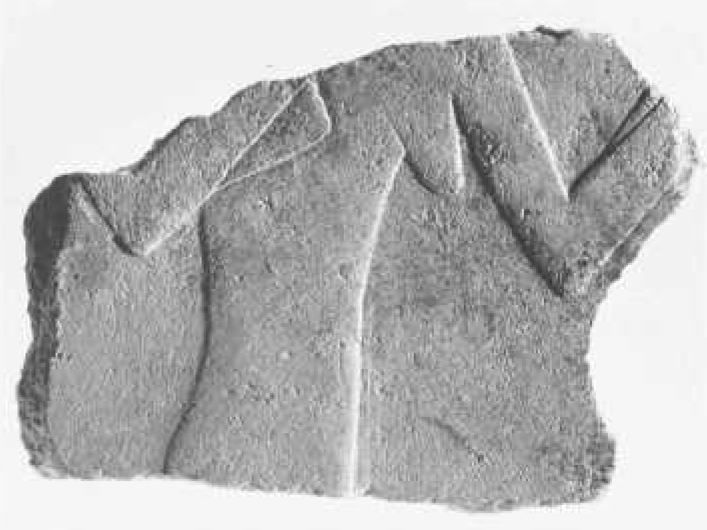
Pl. 158a. Female figure from the pyramid temple with striped red hair and a horn projecting from her forehead. Dimensions: 17.9 x 28.2 cm. Photo B.S. (DH 99:R159).



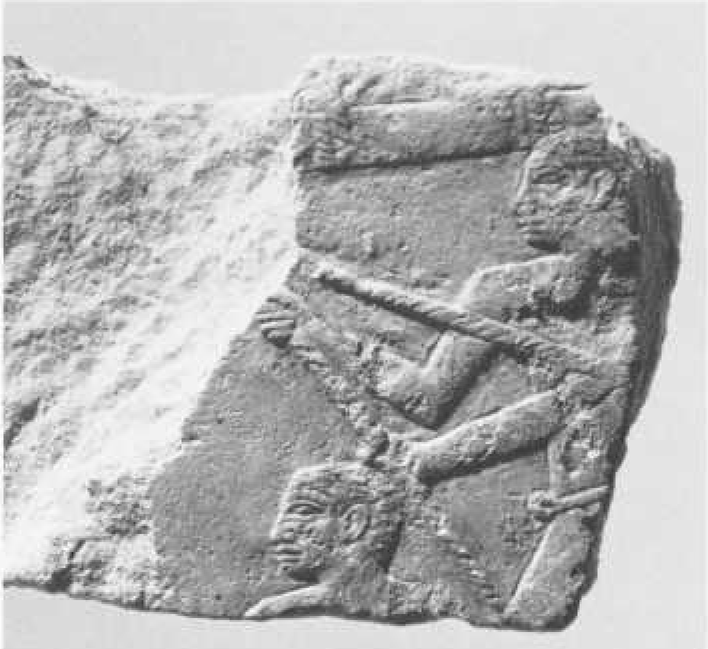
Pl. 158b. Head of a large-scale female figure from the pyramid temple. Dimensions: 25.7 x 10.5 cm. Photo E.T. (DH 96:575).



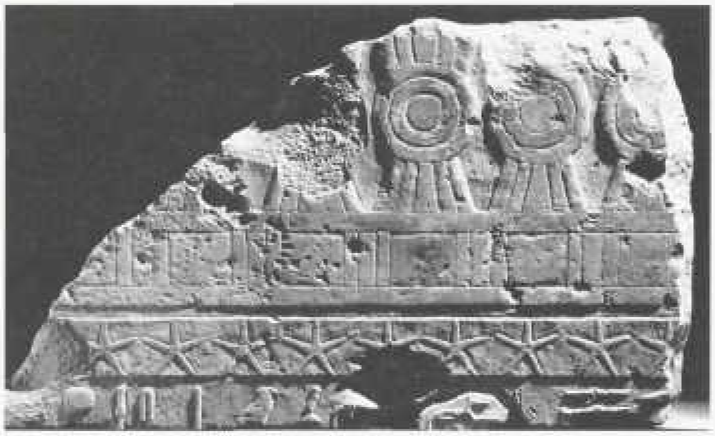
Pl. 158c. Fragment from the pyramid temple of a purification scene with ankh-signs emerging from a *hes*-vase. Dimensions: 24.4 x 8.5 cm. Photo E.T. (DH 96:451).



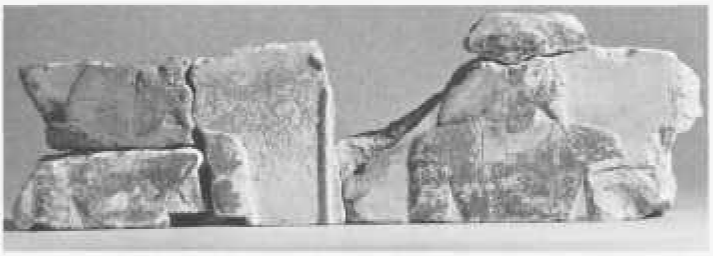
Pl. 158d. Parts of two small-scale figures from the pyramid temple with arms bent in a respect gesture; the figure on the right has a pendulous breast. Dimensions: 12.8 x 10 cm. Photo B.S. (DH 99:R156).



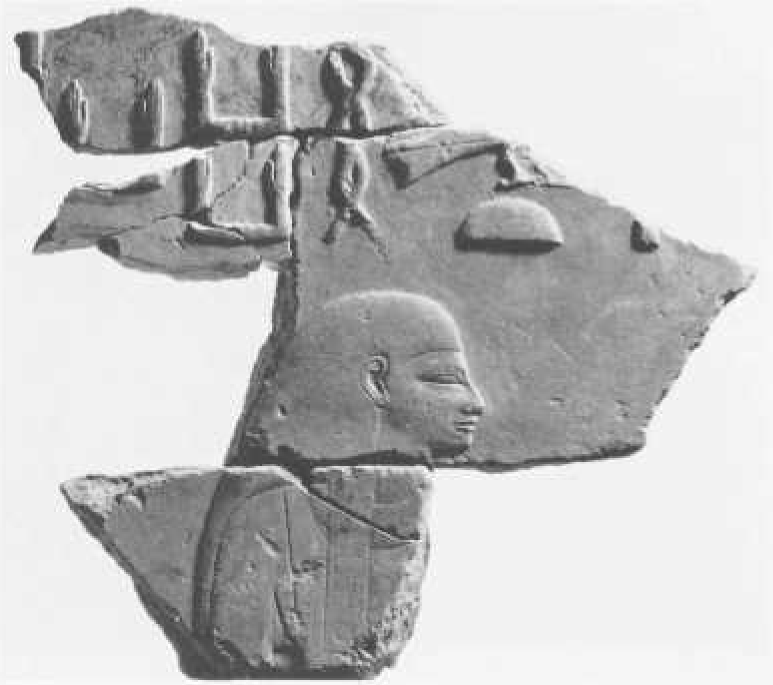
Pl. 158e. Sailors working the rigging of a ship from the pyramid temple. Dimensions: 5.5 x 6.5 cm. Photo B.S. (DH 99:R146).



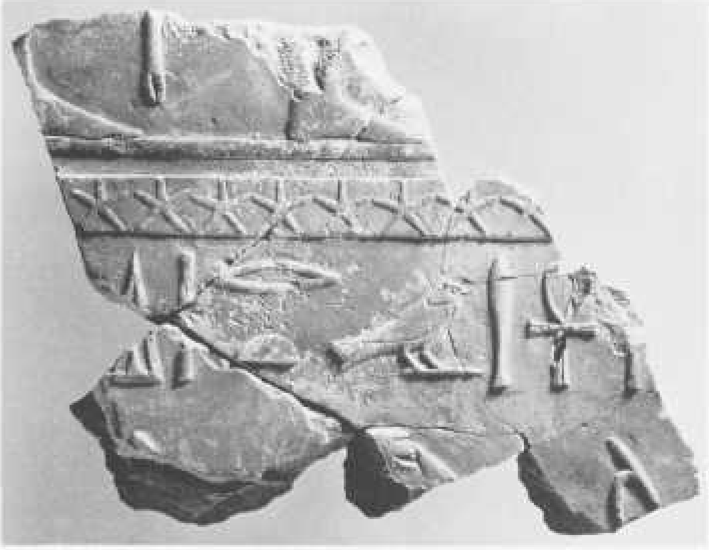
Pl. 159a. Top of one wall of deities facing right in the "square" antechamber of the pyramid temple. At the far right is part of an inscription for Rosetjau and in the center is an inscription for Khenty-imentiu. Dimensions: 73.1 x 47.6 cm. Photo B.S. (DH 99:R115).



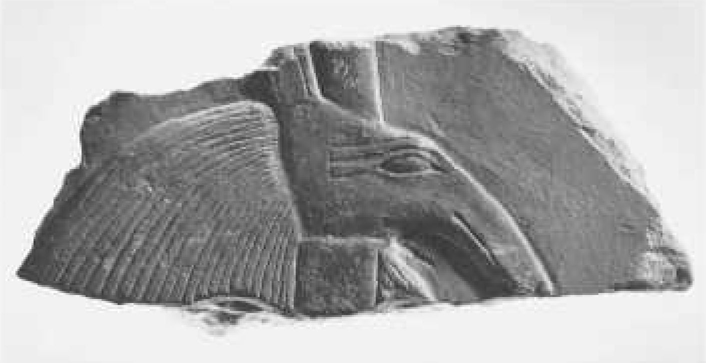
Pl. 159b. Parts of two human-headed male deities from the "square" antechamber of the pyramid temple. Dimensions: 55.8 x 18.1 cm. Photo P.Z. (DH 00:R29).



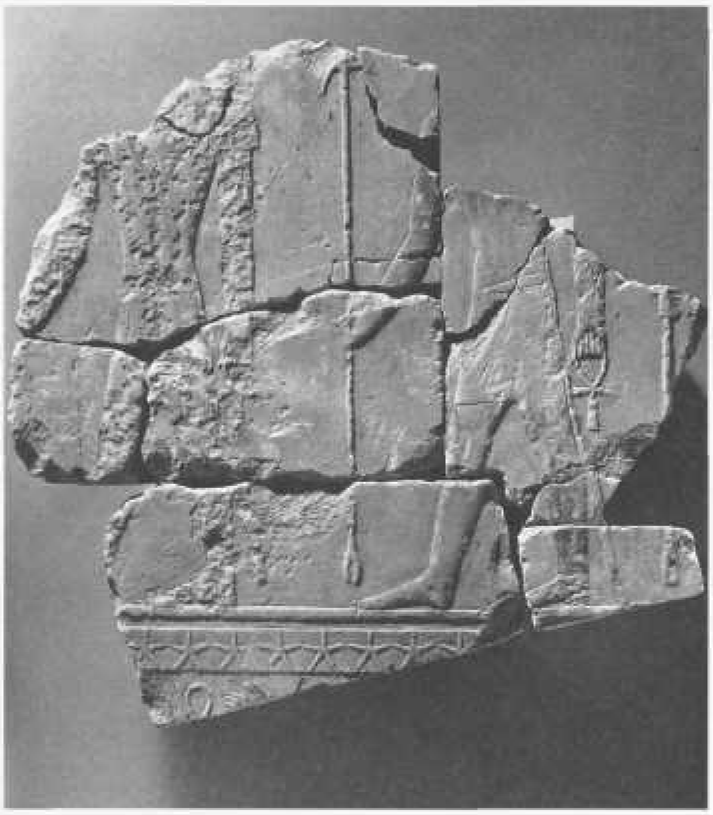
Pl. 159c. The goddess Weret-hekau from the "square" antechamber of the pyramid temple. Dimensions: 31.8 x 29 cm. Photo B.S. (DH 99:R159).



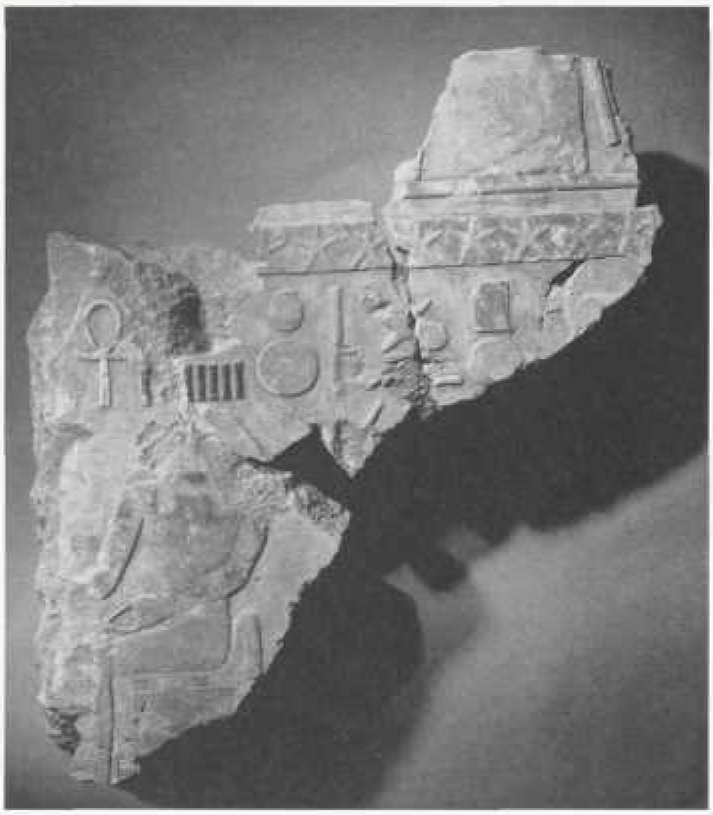
Pl. 159d. Part of a lioness goddess from the "square" antechamber of the pyramid temple. Dimensions: 45.3 x 35.1 cm. Photo B.S. (DH 00:R88).



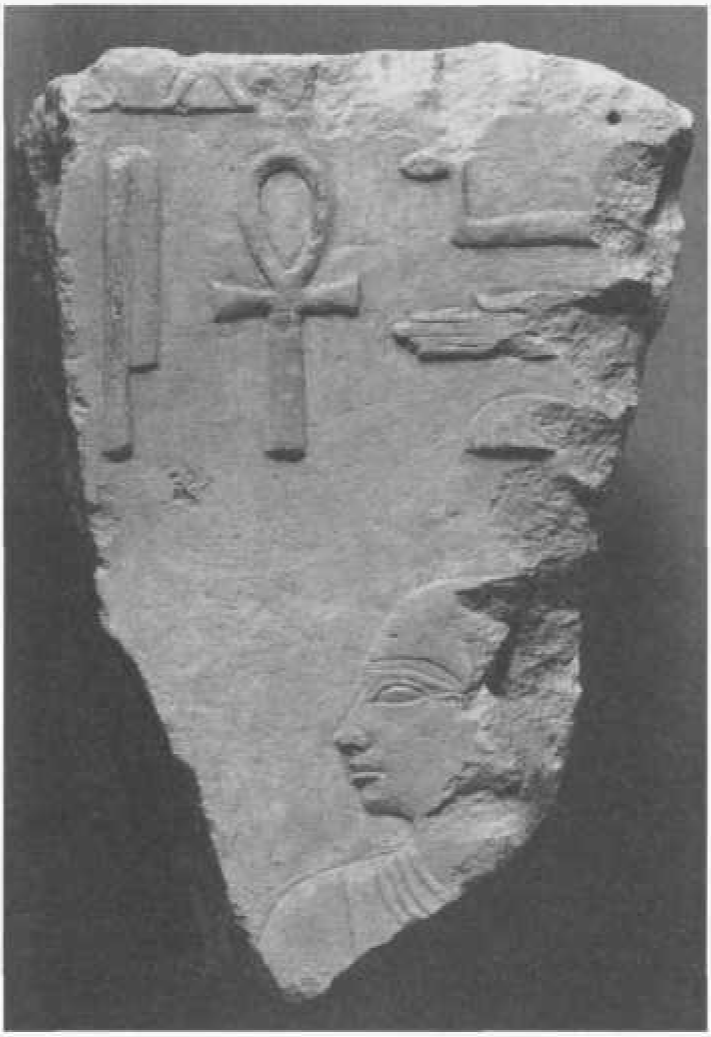
Pl. 159e. Head of Seth from the "square" antechamber of the pyramid temple. Dimensions: 17.2 x 7.7 cm. Photo B.S. (DH 98:R124).



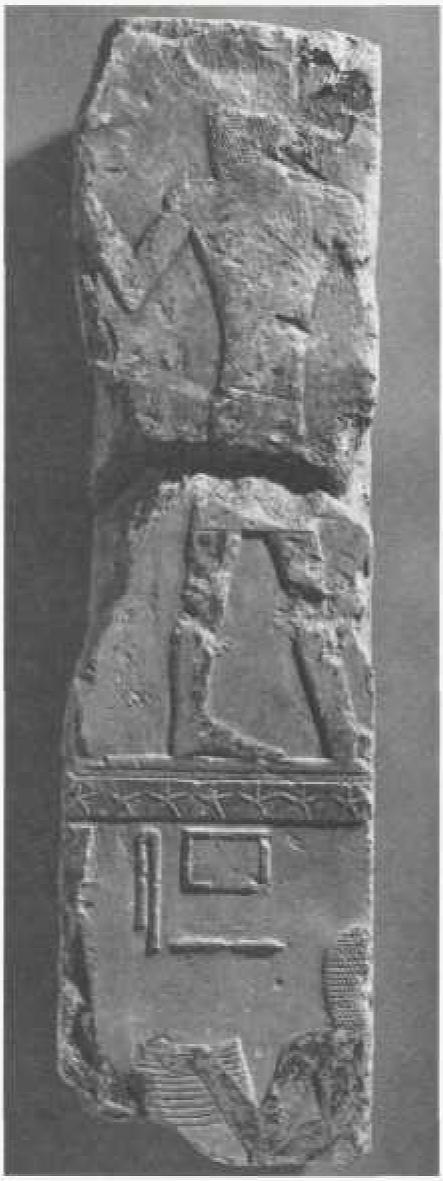
Pl. 160a. Deliberately defaced deity and parts of two better-preserved deities from the "square" antechamber of the pyramid temple. Dimensions: 67.5 x 65.9 cm. Photo B.S. (DH 00:R64).



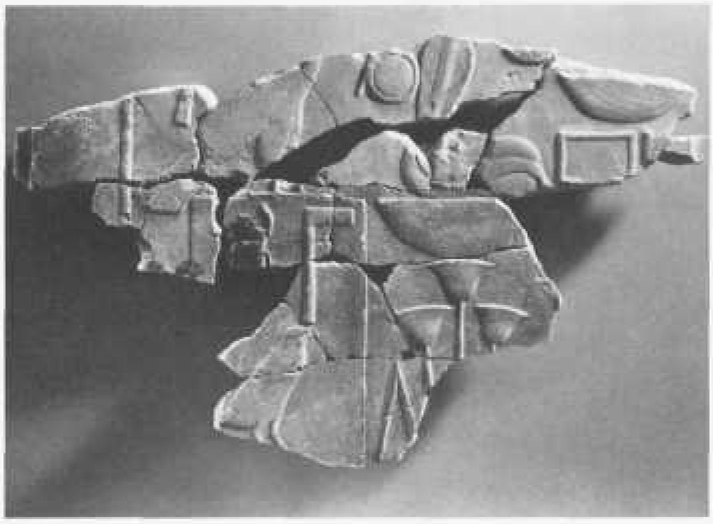
Pl. 160b. Enthroned image of Thoth and inscription of Tjai-sep-ef with standing deity above from the "square" antechamber of the pyramid temple. Dimensions: 47.8 x 56.6 cm. Photo A.O. (DH 94:475).



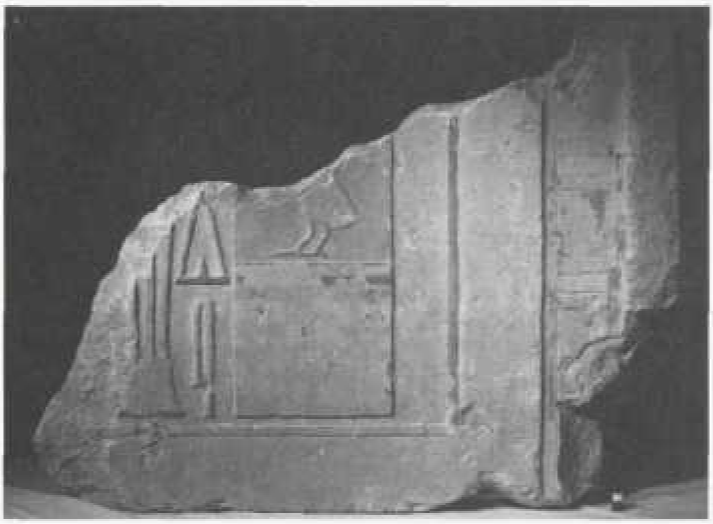
Pl. 160c. Head and inscription of a goddess of Djedet (Mendes) from the "square" antechamber of the pyramid temple. Dimensions: 17.8 x 27.1 cm. Photo E.T. (DH 96:454).



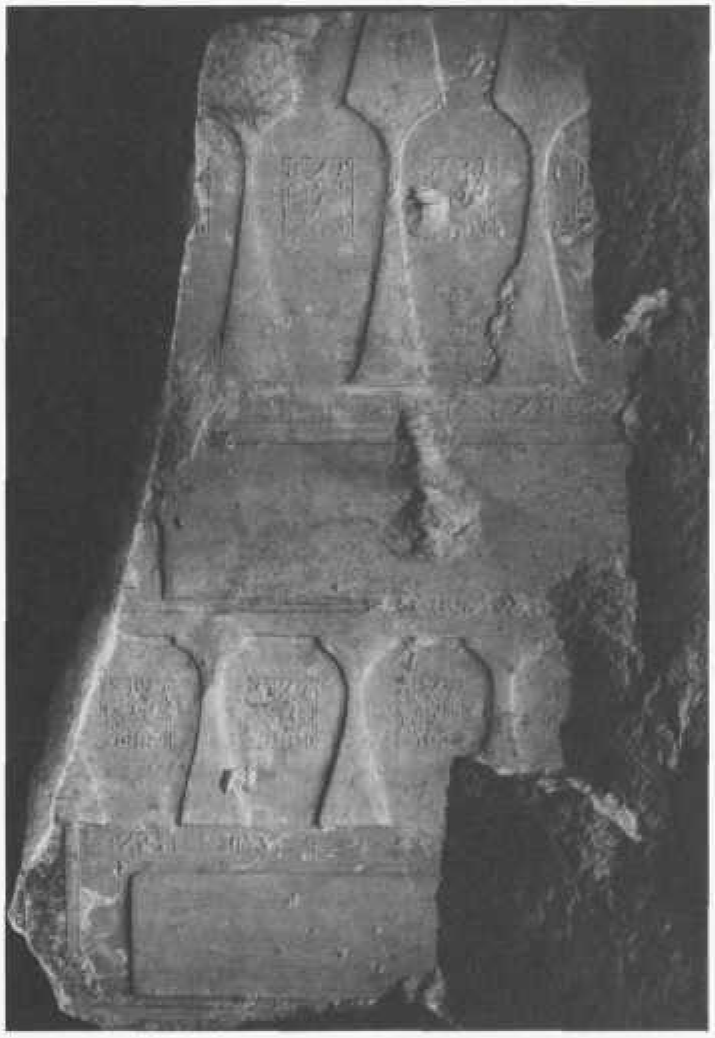
Pl. 160d. Parts of two offering bearers from the offering chamber of the pyramid temple. Dimensions: 25.2 x 89.5 cm. Photo B.S. (DH 00:R50).



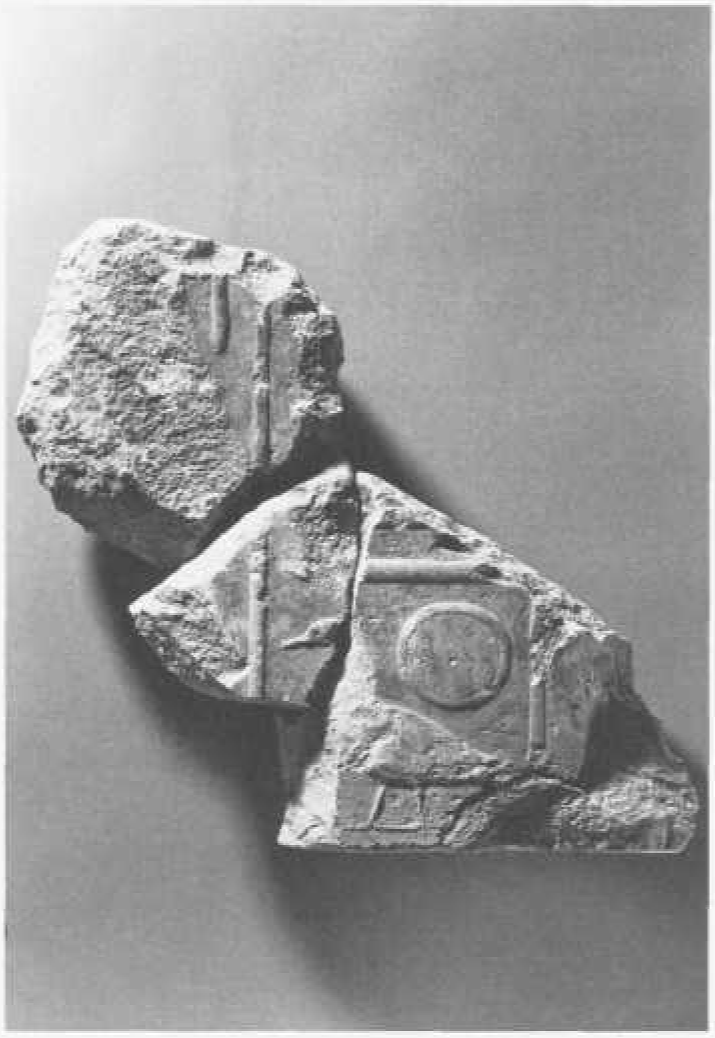
Pl. 161a. Upper left section of a door lintel from the interior of the pyramid temple with Horus name of Senwosret III and Wadjet. Dimensions: 70.9 x 44.5 cm. Photo B.S. (DH 00:R57).



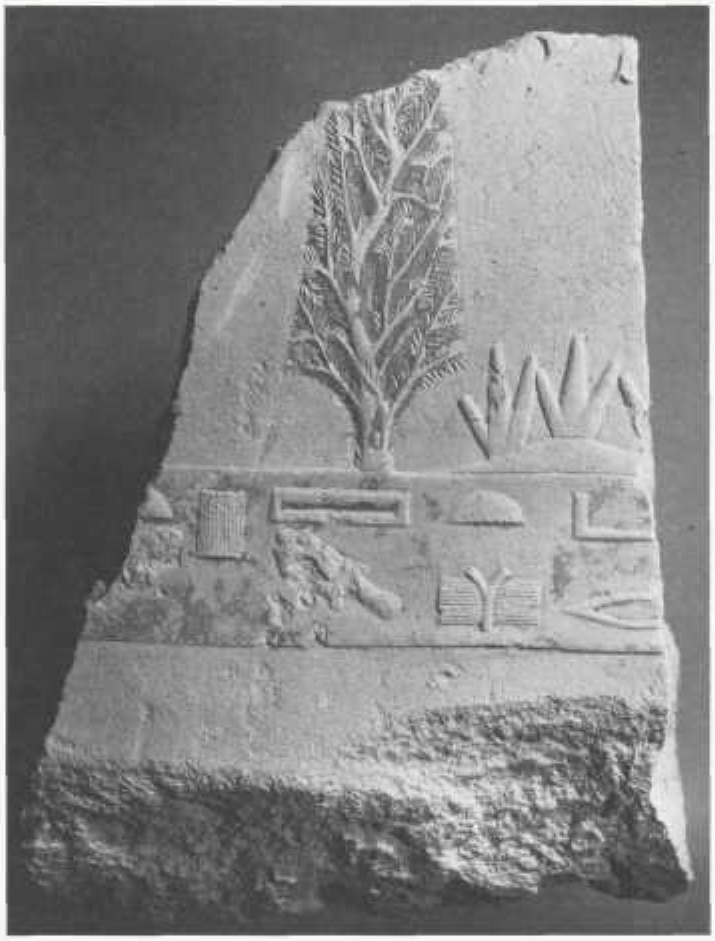
Pl. 161b. Lower right section of a door lintel with part of the Horus name of Senwosret III from the interior of the pyramid temple. Dimensions: 56.5 x 53 cm. Photo A.O. (DH 93:224).



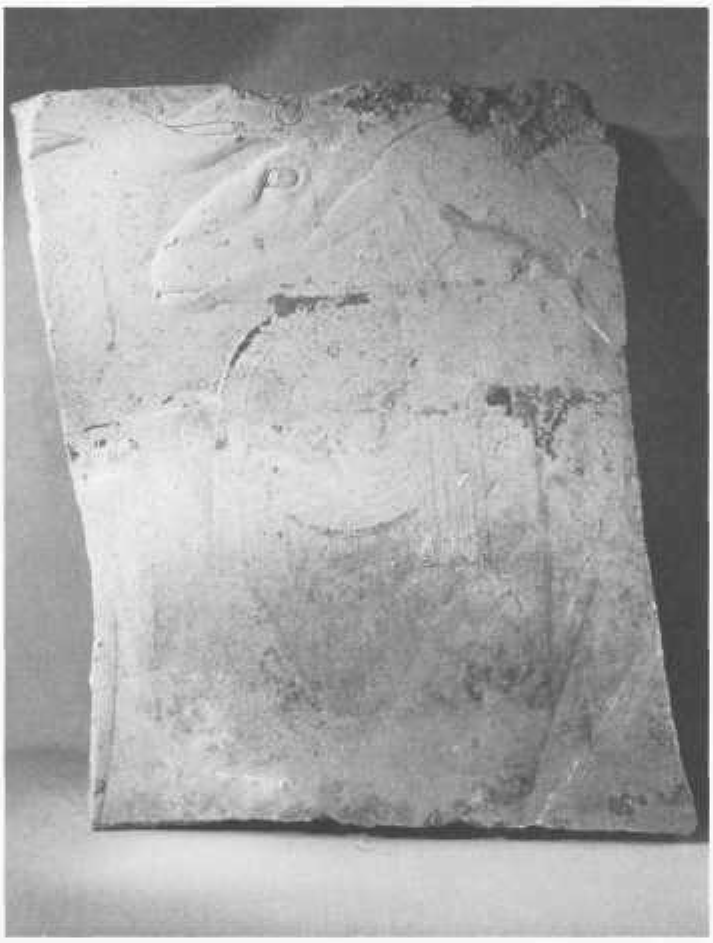
Pl. 161c. Inscribed vessels and tables from a door lintel that was probably located in the offering chamber of the pyramid temple. The soffit and doorframe are on the underside of the lower right corner of the block. Dimensions: 55.5 x 86.7 cm. Photo A.O. (DH 93:220).



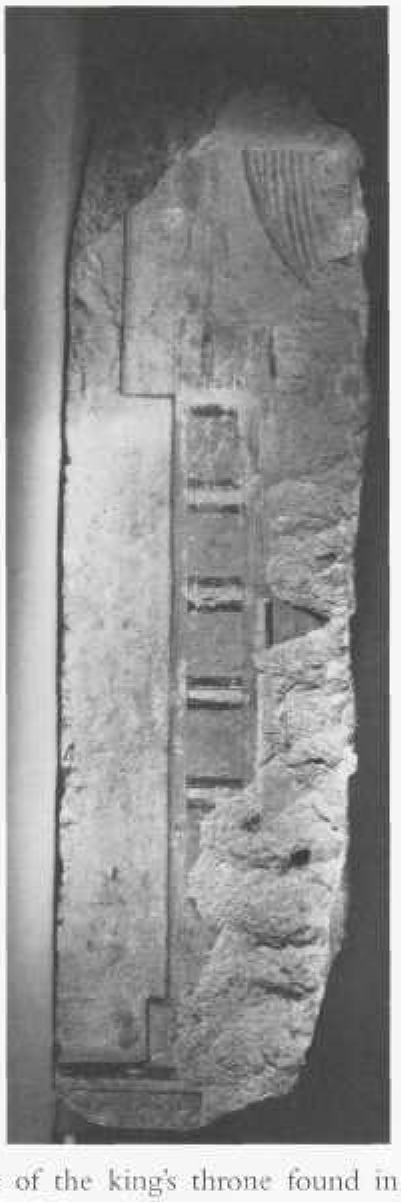
Pl. 161d. Piece of a doorframe from the interior of the pyramid temple with remains of Senwosret III's two-ladies name on the left and *neb tawy sa Re* on the right. Dimensions: 39 x 39.4 cm. Photo B.S. (DH 00:R64).



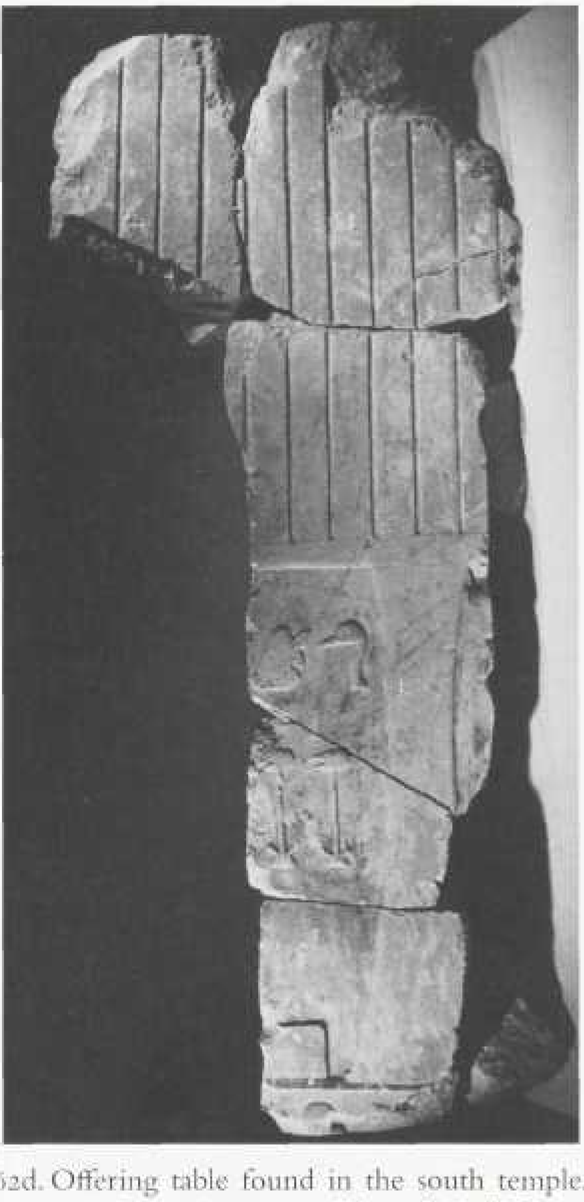
Pl. 162a. Small-scale nature scene found in the south temple. Dimensions: 15.3 x 17.7 cm. Photo A.O. (DH 93:144).



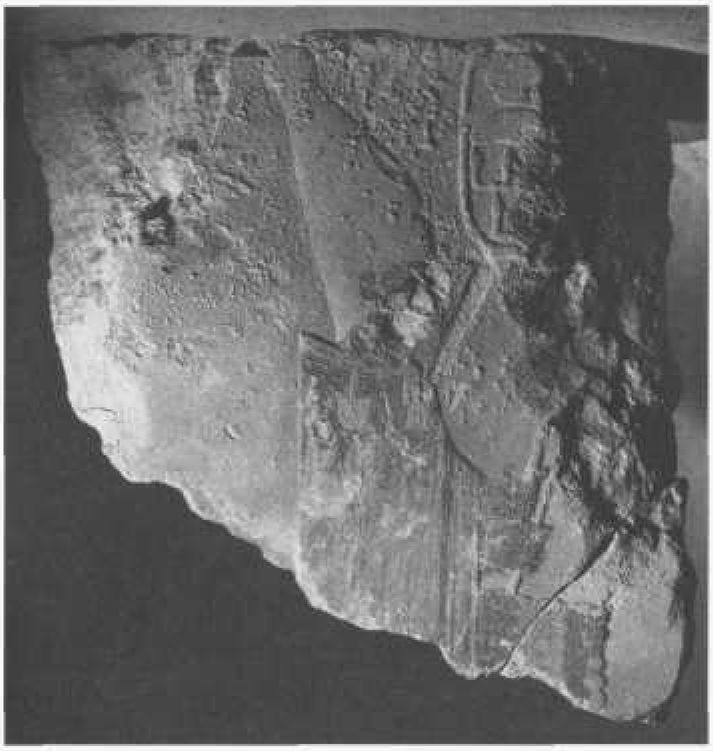
Pl. 162b. Large-scale ram-headed deity found in the south temple. Dimensions: 84.5 x 67 cm. Photo A.O. (DH 93:111).



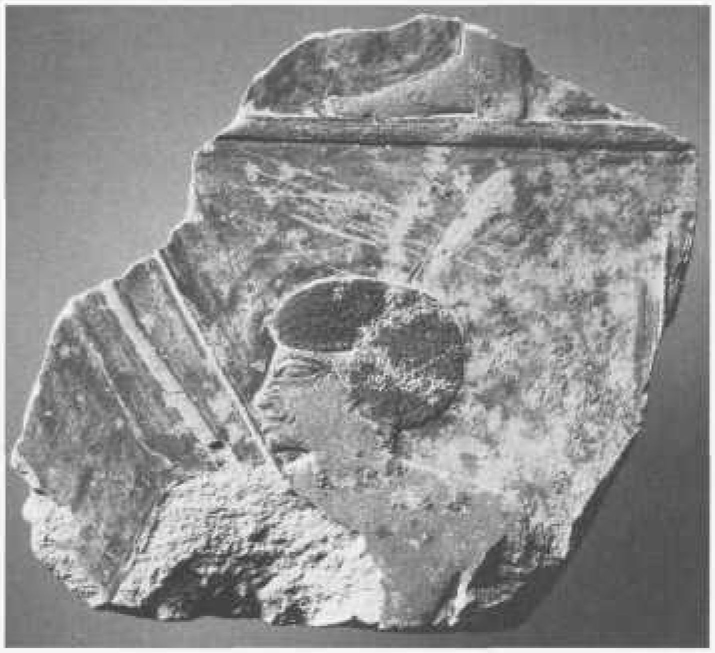
Pl. 162c. Back of the king's throne found in the south temple. Dimensions: 22.5 x 75.3 cm. Photo A.O. (DH 93:114).



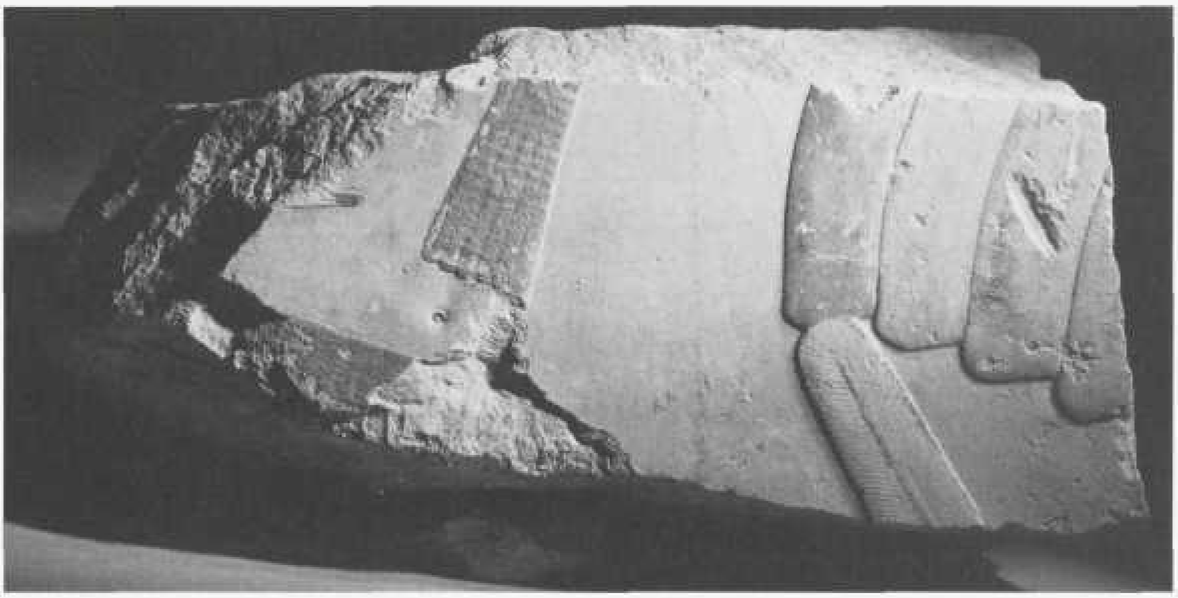
Pl. 162d. Offering table found in the south temple. Dimensions: 46 x 107 cm. Photo A.O. (DH 93:115).



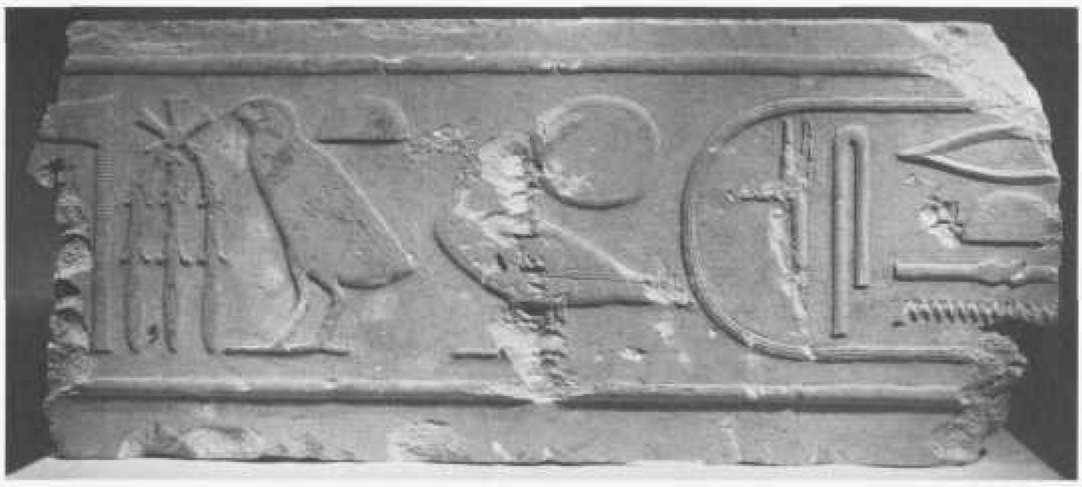
Pl. 163a. King in *sed*-festival garment found in the south temple. Dimensions: 48 x 56 cm. Photo A.O. (DH 92:351).



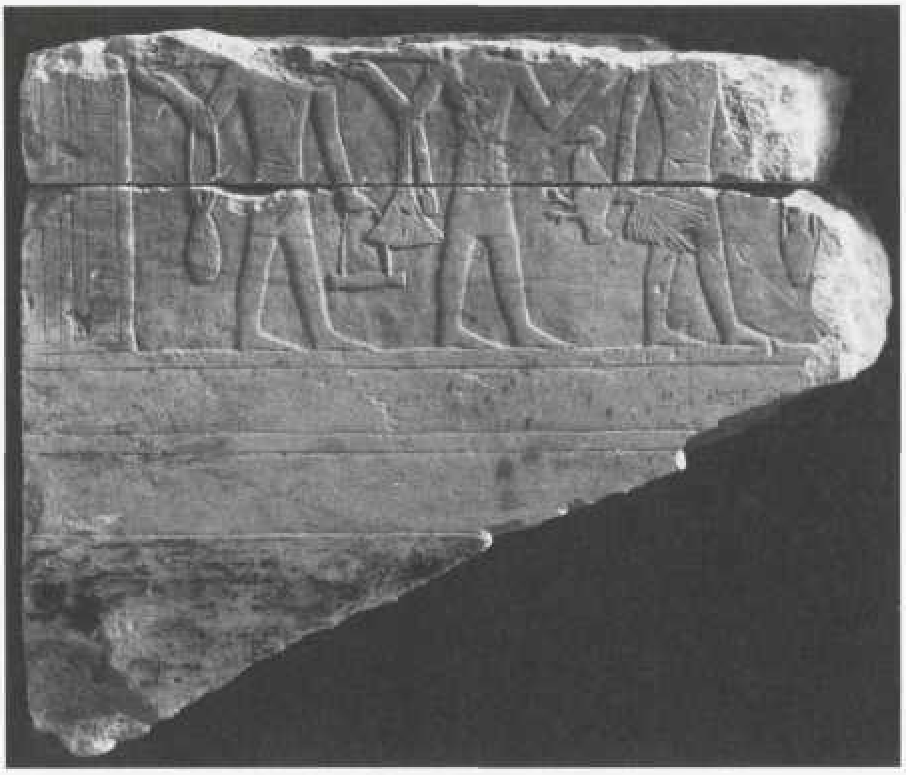
Pl. 163b. Nubian archer found in the south temple. Dimensions: 14.4 x 15.3 cm. Photo K.M. (DH 95:467).



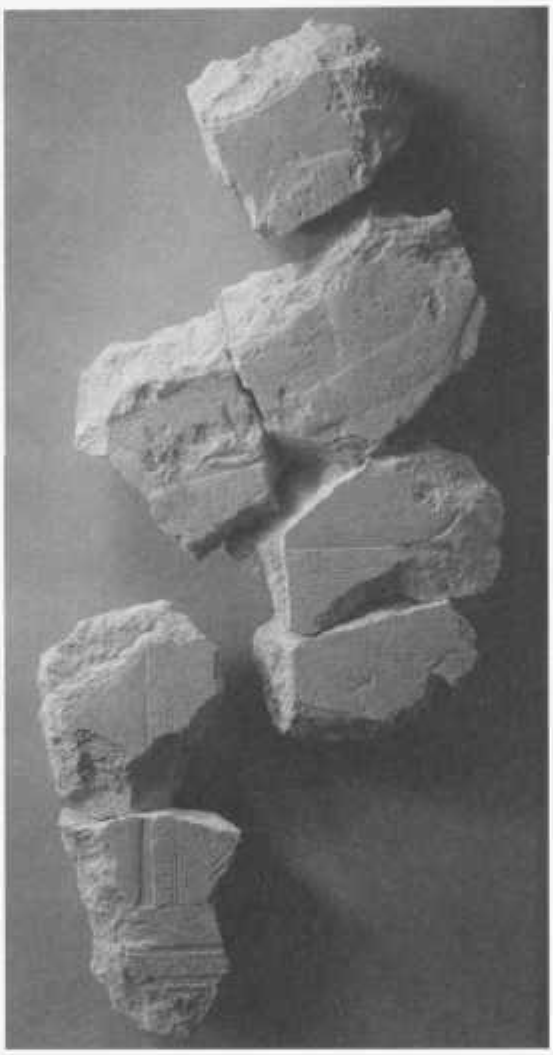
Pl. 163c. Torso of king and arms of prisoners from a smiting scene found in the south temple. Dimensions: 47.3 x 22.7 cm. Photo A.O. (DH 94:472).



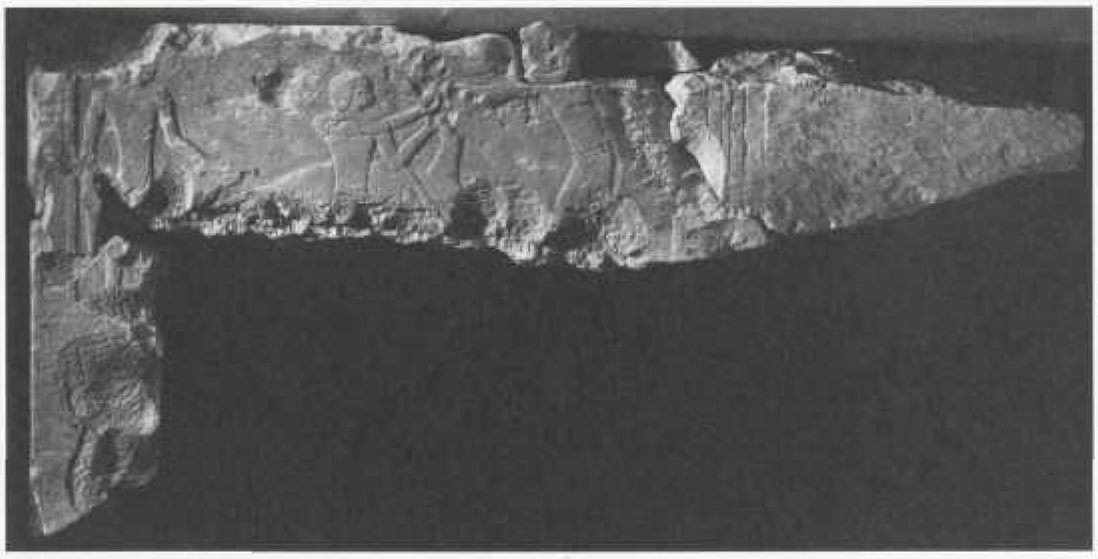
Pl. 163d. Possible exterior horizontal inscription found in the south temple with the two ladies and birth names of Senwosret III. Dimensions: 104.5 x 46 cm. Photo A.O. (DH 93:216).



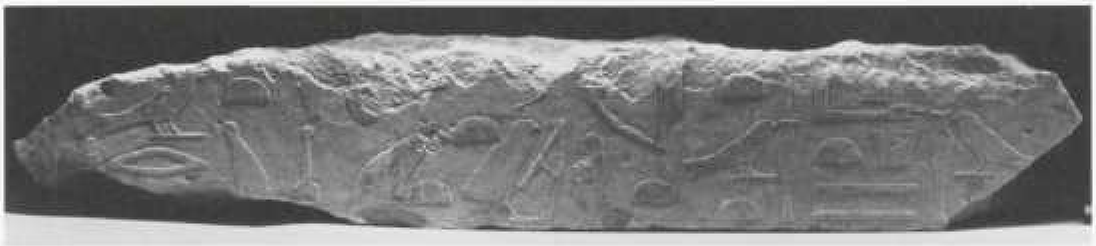
Pl. 164a. Offering bearers from the north end of the east wall of the north chapel of pyramid 8 (Weret I). Dimensions: 54.8 x 46.7 cm. Photo B.S. (DH 98:R129).



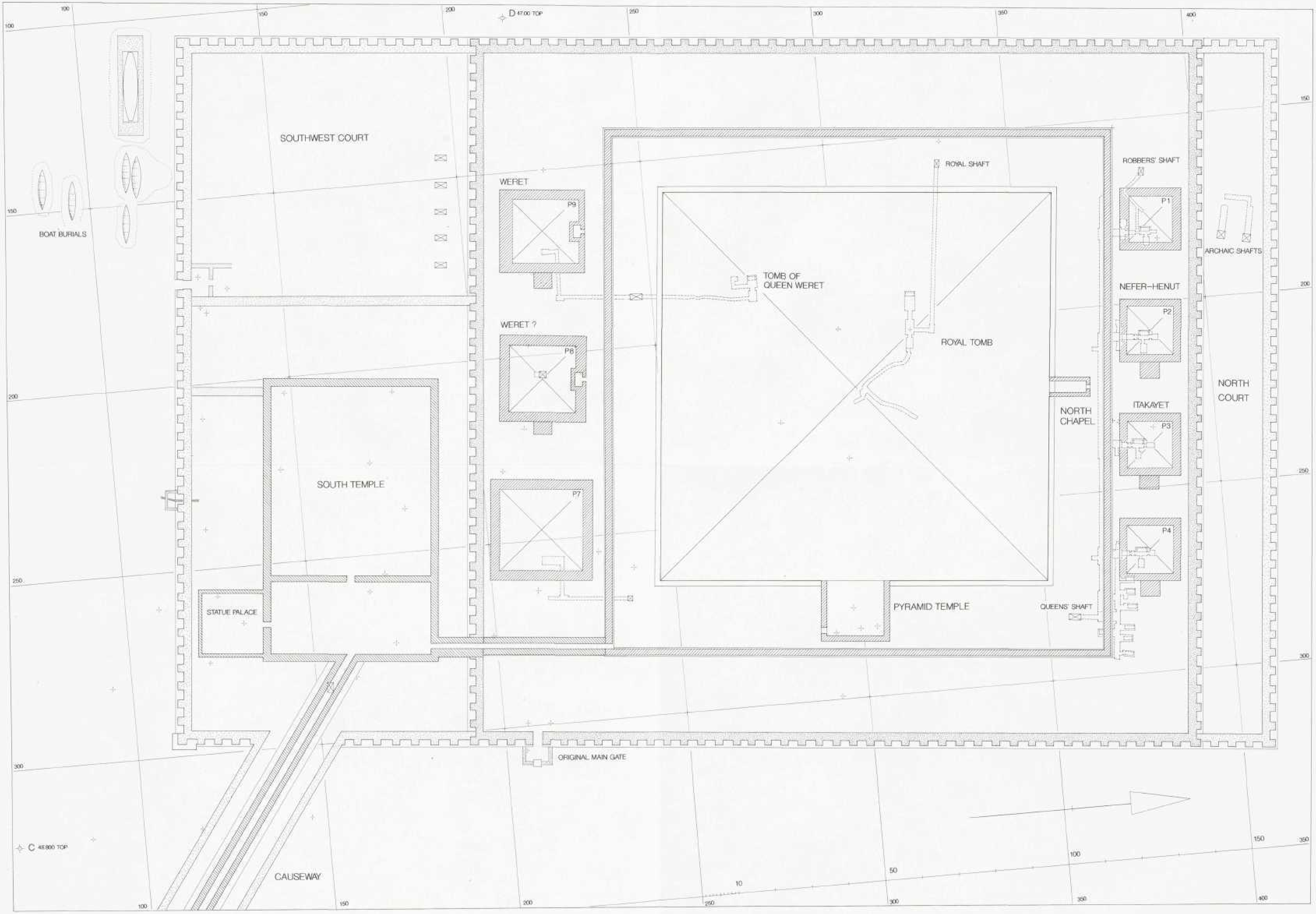
Pl. 164b. Enthroned queen from the east chapel of pyramid 8 (Weret I). Dimensions: 38 x 84 cm. Photo A.K. (DH 97:R129).



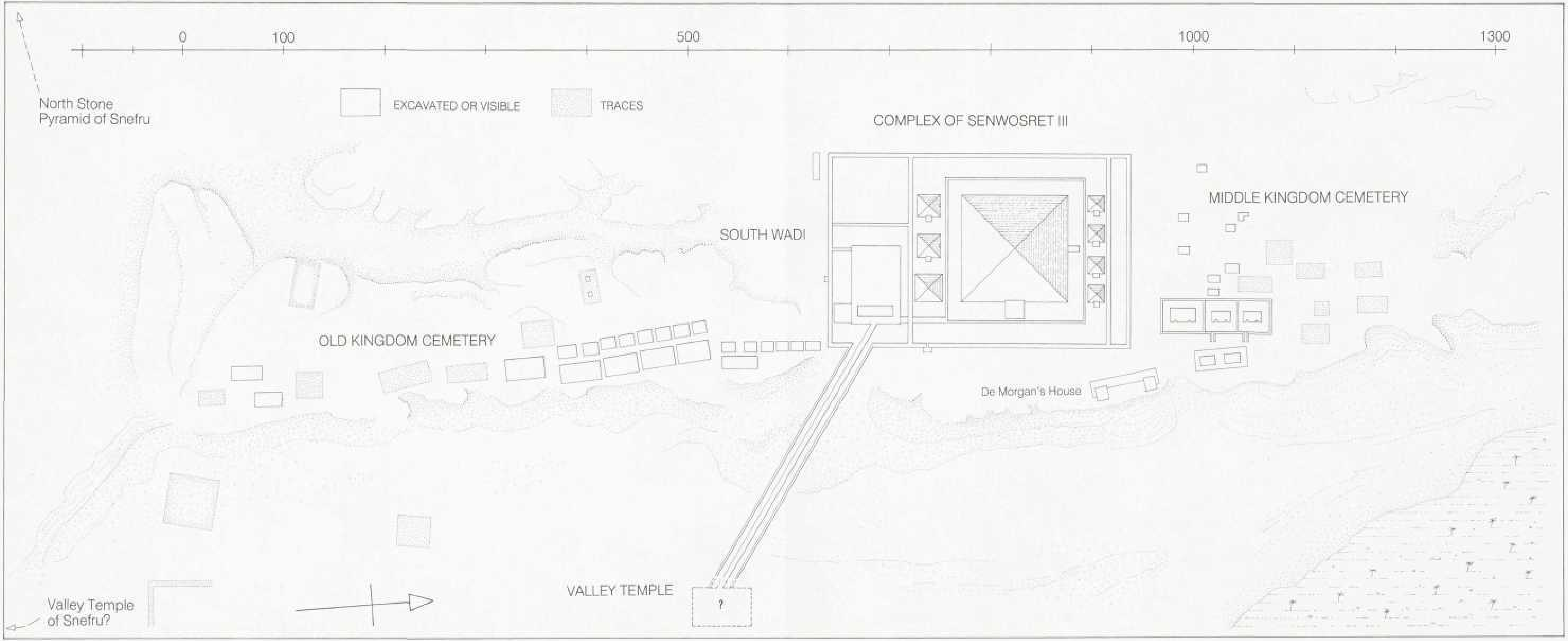
Pl. 164c. Cattle slaughtering scene from the east side of the north wall of the north chapel of pyramid 8 (Weret I). Dimensions: 88.8 x 44.8 cm. Photo B.S. (DH 98:R116).



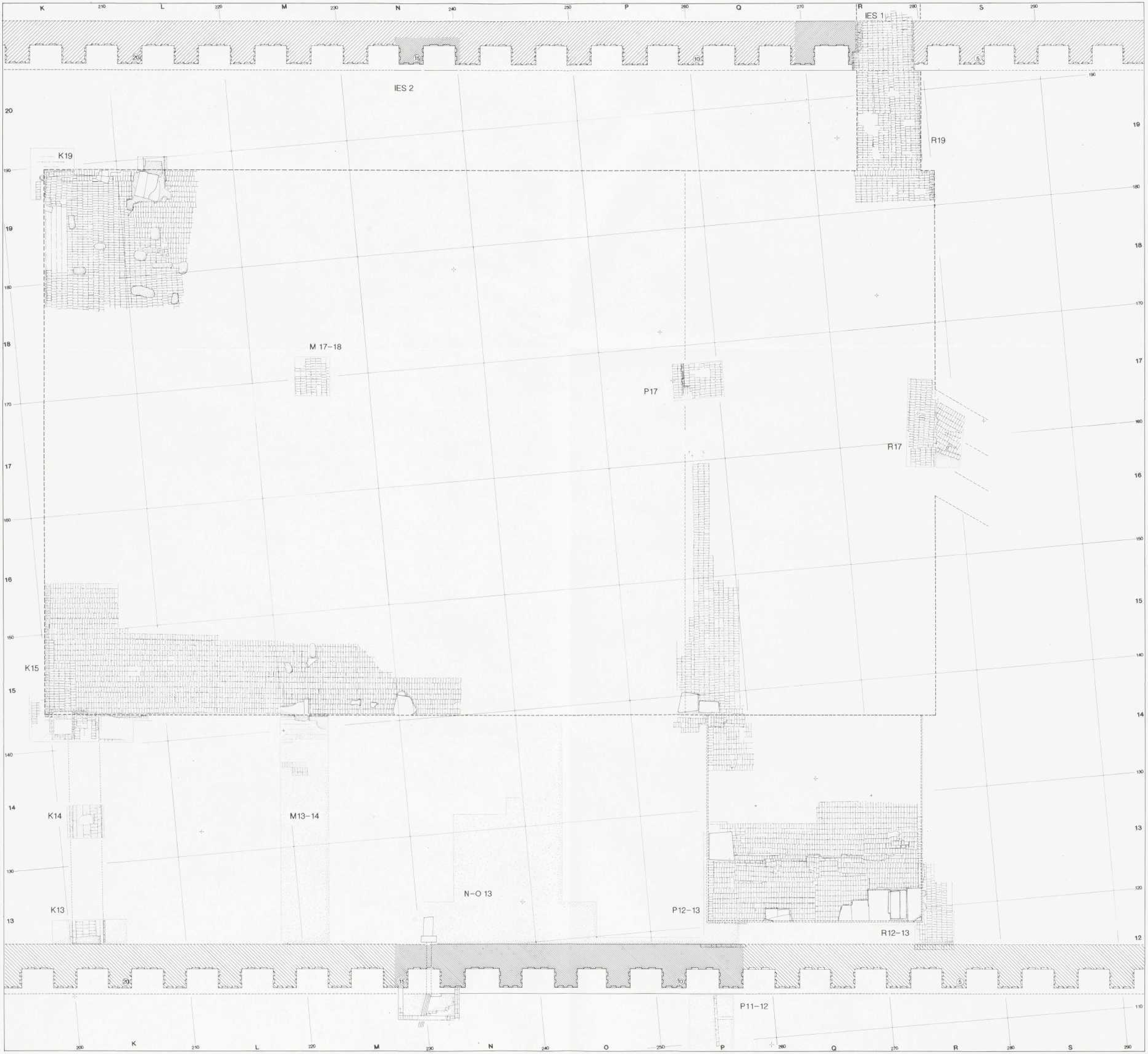
Pl. 164d. Tympanum from the north chapel of pyramid 8 (Queen Weret I). Dimensions: 99.2 x 17.5 cm. Photo A.K. (DH 97: R132).



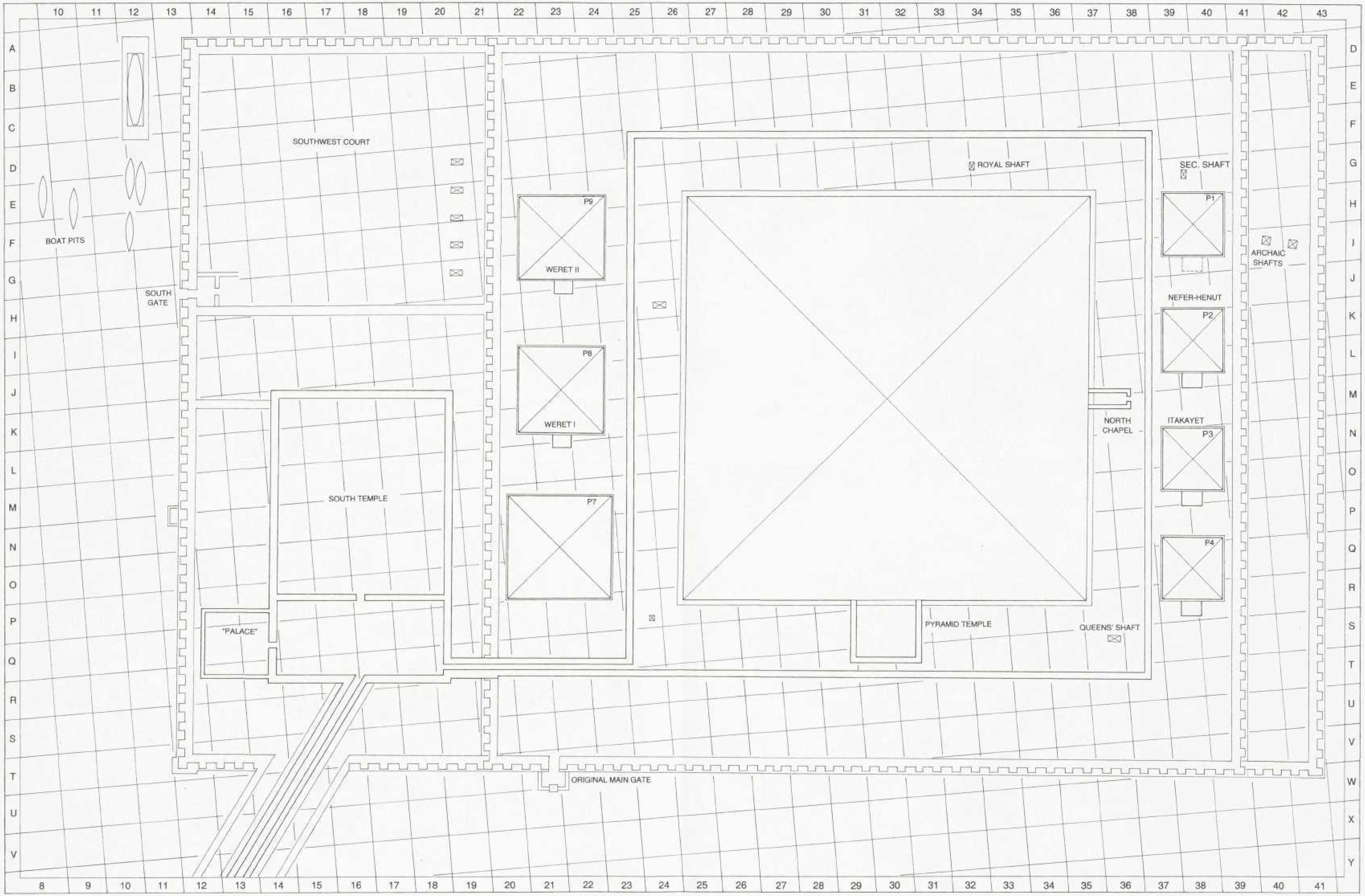
Plan I. Overall plan of the pyramid complex of Senwosret III. Scale 1:800. Drawing D.A.



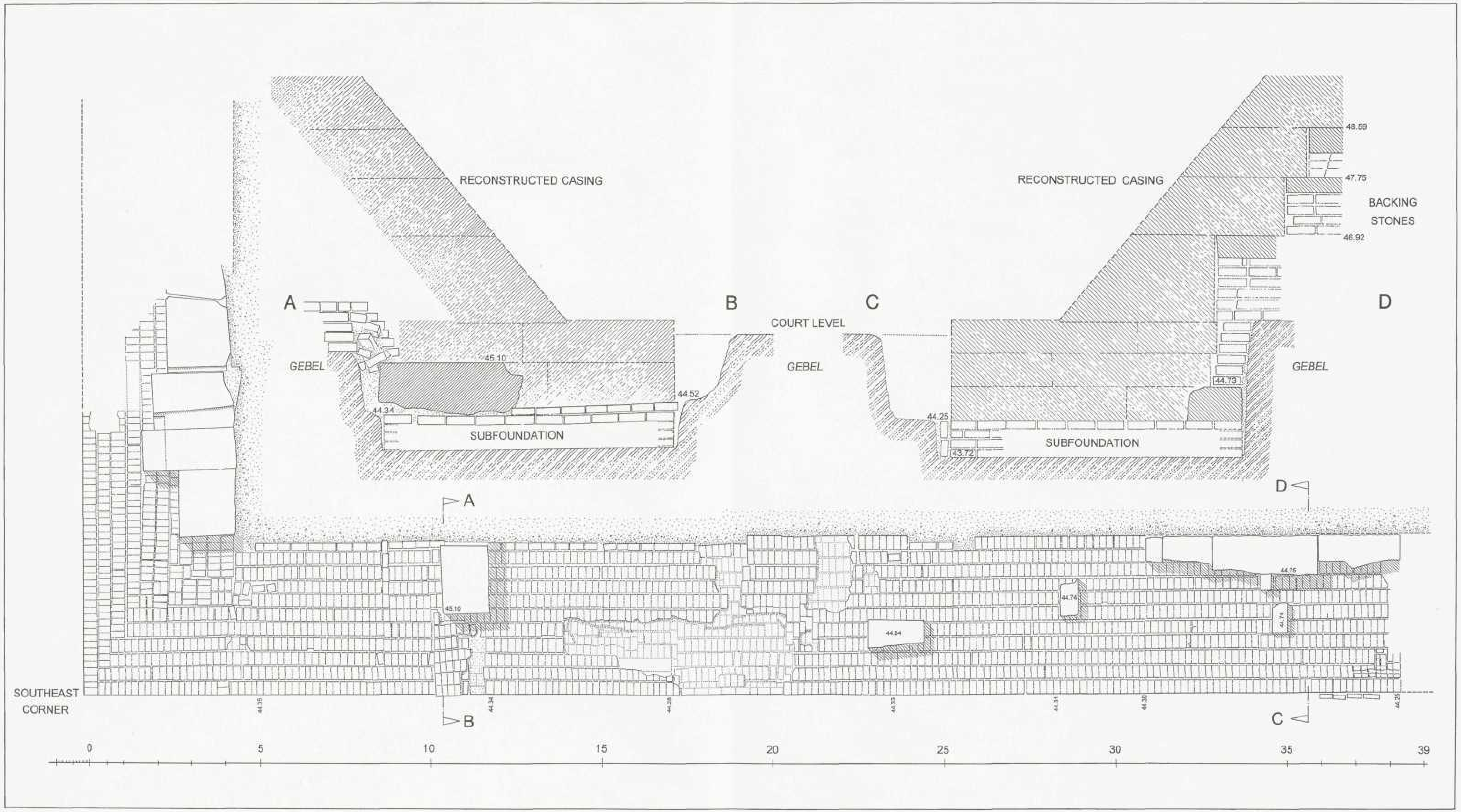
Plan V. Plan of the pyramid complex of Senwosret III and surrounding monuments. Scale 1:400. Drawing D.A. based on aerial photographs.



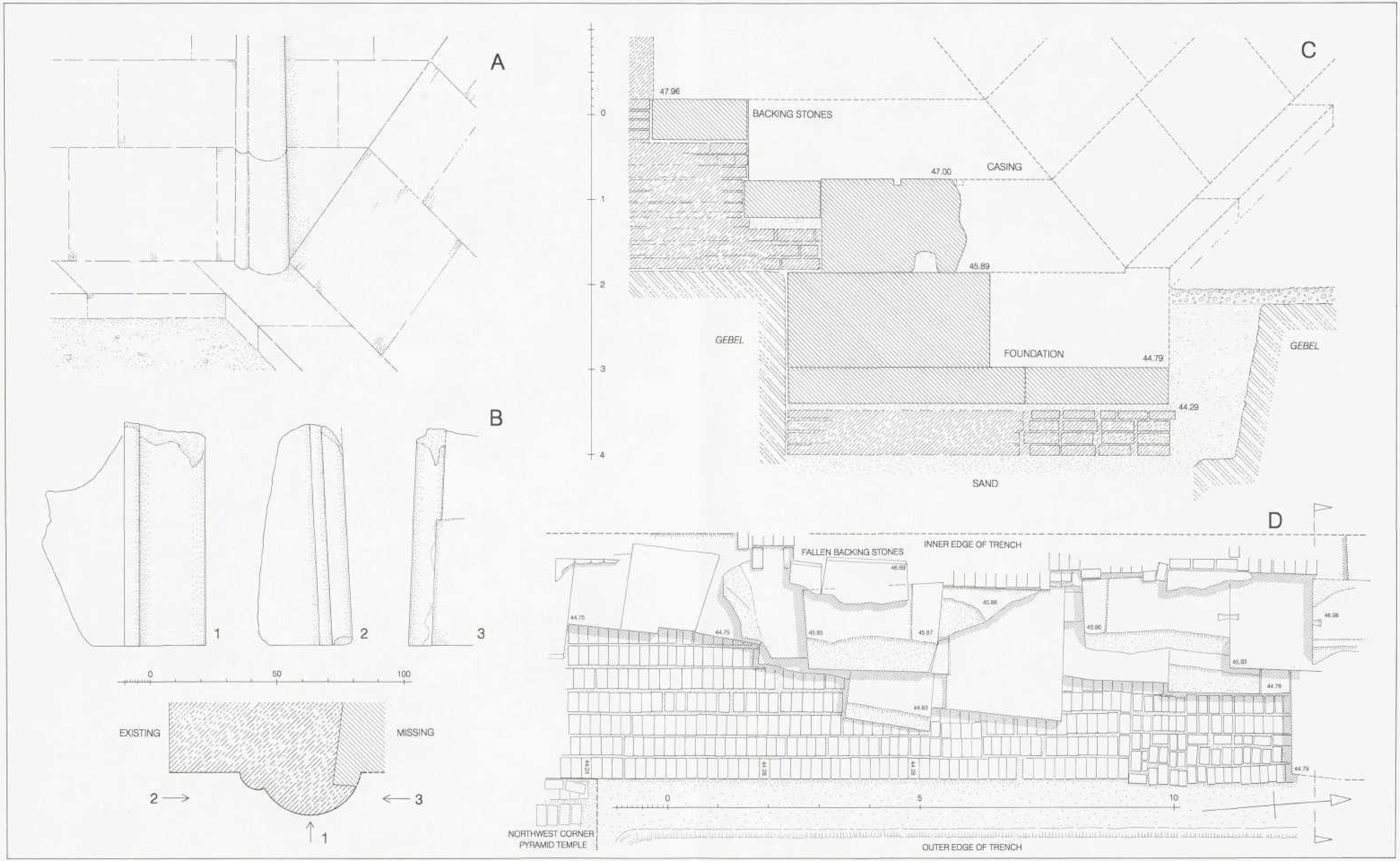
Plan III. Reconstructed overall plan of the south temple based on excavations to the end of the 1994 season. Scale 1:200. Drawing D.A. from drawings by D.A. and R.T.



Plan VI. Pyramid complex of Senwosret III with grid system of 10 x 10 meter squares. Scale 1:800. Drawing D.A.



Plan IV. Plan of the south end of the east side of the pyramid foundation (scale 1:100) and two sections through the foundation of the pyramid casing (scale 1:50). Drawings D.A.



Plan II. *A)* Reconstructed northwest corner of the pyramid temple, no scale. *B)* Elevations (scale 1:33⅓) and plan (no scale) of torus found in the 2000 season near the northwest corner of the pyramid temple. *C, D)* Section (scale 1:40) and plan (scale 1:66⅔) of pyramid foundation north of pyramid temple, excavated in the 2001 season. Drawings D.A.